The Magazine of

STANDARDS

The Magazine of
STANDARDS
Formerly Standardization

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Featured

News

American Standards Activities

MARGINAL NOTES

The Magazine of Standards —

For years the editors of STANDARDIZATION have heard the complaint that to many people the word "standardization" connotes "regimentation." With this issue, STANDARDIZATION ceases to exist, and THE MAGAZINE OF STANDARDS takes its place. The publisher's aim will be to live up to this new name and to present ideas on preparation, approval, use, application, philosophy, and personalities connected with standards of every type, in all places.

The Front Cover —

The Howard Coonley Medal and the Standards Medal were presented during the Fourth National Standardization Conference to Senator Ralph E. Flanders, Vermont, and Colonel Perry L. Houser, International Harvester Company (p 14). The front cover shows Senator Flanders (left); ASA President Gay; and Colonel Houser, after presentation of the medals.

The Fourth National Standardization Conference —

Twenty-six states and three countries (Canada, India, USA) were represented at the Conference held at the Waldorf-Astoria, New York, October 19-21, 1953. Attendance was larger than at any previous conference under the auspices of the ASA.

Both the past and the future were featured. The past was represented in the thirty-fifth annual meeting of the American Standards Association which took a backward look to the time when five national technical societies foresaw the needs of the future and organized an infant national standards body for the USA.

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With deep regret the American Standards Association announces the sudden death of Dr P. G. Agnew Saturday morning January 9.

The future was foreshadowed in President Roger Gay's plea to American business management to avoid emergencies in future phases of the national economy by developing national standards now. He referred specifically to automatic production, now widely known as "automation."

Mr Gay's plea was brought home in a film on "Project Tinkertoy." This is the Navy Bureau of Aeronautics project, developed through the National Bureau of Standards, which speeds production of electronic components by using automatic processes (see STANDARDIZATION, November 1953). The film was shown at an especially arranged session Wednesday afternoon, October 21. Dr A. T. McPherson, Associate Director of the National Bureau of Standards, introduced J. G. Reid, Jr, chief of the Bureau's Electronics Division, who gave a general explanation of the project. Robert Henry, project engineer in charge of the work on "Tinkertoy," presented the commentary.

Before the Industrial Noise Symposium — Dr Aram Glorig (left) and Dr H. Wayne Rudmose (center) chat with Wallace Waterfall, secretary of the Acoustical Society of America (sponsor of Committee Z24).

Other outstanding sessions included a popularized explanation of statistical quality control (p 26) ; presentation of a study on the effect of industrial noise (p 15) ; and the Company Member Conference (p 29).

Abstracts of the Conference speeches are published in this issue. The complete report will be available in the published Proceedings.

ASA

Reg. U. S. Pat. Off.

Except where otherwise indicated, all pictures of the Fourth National Standardization Conference were taken by Neil McDonnell.

This Month's Standards Personality

Dr John Gaillard

More than thirty years ago a young man came to this country from Holland to seek fame and fortune. He had graduated from Delft University as a mechanical engineer (later he received the doctorate degree from the same university). Among other activities he had service as a patent attorney and as Acting Director of the national standards body of his native land. Soon after he arrived in this country he became associated with Dr Gilbreath, internationally famous exponent of scientific management. All these activities provided excellent background and training for the position which he shortly assumed as mechanical engineer on the staff of the American Engineering Standards Committee. He has held this position throughout the remainder of his industrial career.

His gracious manner, his integrity, his desire to be of service, and many other personal characteristics have endeared him to those with whom he has come in contact. He has obtained fame in his chosen field of activity — standardization — through his nearly 30 years of service in ASA, and he has obtained fortune in terms of the appreciation of hundreds of people for the assistance he has so freely given.

John Gaillard has rendered distinguished service in many ways. His sound engineering training has enabled him to enter technical discussions in such a way that technical committees have found the key to progress in their assigned tasks. He has solved technical and standardization policy problems for hundreds of people who have posed their difficulties by correspondence, by telephone, and by personal visits to his office. In this way he has won many friends for standardization and ASA. In his routine activities he has never for one moment taken his eyes off the fundamental principles underlying ASA operations.

When Dr Gaillard first joined the ASA staff he could easily count the number of people engaged in standardization work. Through his standardization seminars, conducted twice a year for several years, he has personally trained 200 men, indirectly brought about the organization of standardization departments in a number of companies, and brought to ASA a number of Company Members. In addition, the ASA story has been implanted in the minds not only of the 200 men attending the seminars but among a much wider circle of people associated with those who received the information directly. This teaching of the value of the philosophy of standardization spreads over into a course in the Department of Industrial Engineering of Columbia University taught in the evenings, and a course given by the industrial engineering department of the Massachusetts Institute of Technology taught by one who participated in the seminars. It is expected that another institute may provide such a course after the professor who will organize it has attended the seminar.

Dr Gaillard left the ASA staff on December 31. We believe that the many members of the sectional committees and other organizations with whom John has been associated throughout the years join the ASA staff in our wish that his new experiences as a consultant on standardization will prove that "the best is yet to be."

— The ASA Staff.

FOUNDERS' DAY, OCTOBER 19, 1953 — Representatives of the five Founder Societies that organized the American Engineering Standards Committee (now ASA) on October 19, 1918, attended the American Standards Association's Annual Meeting October 19, 1953. Professor Comfort Adams, chairman of the 1918 meeting and first Chairman of the AESC after its formal organization, was present at the 1953 meeting. He is seated (right) with Roger E. Gay, re-elected president of the American Standards Association. Other representatives are (standing, left to right): American Society for Testing Materials — Dr Leslie C. Beard, Jr, assistant director, Socony Vacuum Laboratories, New York; American Society of Mechanical Engineers — Frederick S. Blackall, Jr, President, ASME; president, Taft-Peirce Manufacturing Company; American Society of Civil Engineers — Charles W. Bryan, Jr, president, Pullman-Standard Car Manufacturing Company; American Institute of Mining and Metallurgical Engineers — T. B. Counselman, manager, Fluo Solids Sales, the Dorr Company.

THREE GOVERNMENT DEPARTMENTS (WAR, NAVY, COMMERCE) joined the five Founder Societies in the American Engineering Standards Committee immediately after its organization. Representatives of these three departments were at the 1953 Founders' Day meeting. Above (left to right), Commander Wallace Howe (Navy); Colonel Walker W. Milner (Army); B. H. Gordon (Commerce). At the meeting, Colonel Milner said: "You may be assured that it is the military departments' judgment that effective use of the experience of industry and of nationally recognized engineering societies will provide a firm foundation for our standardization program."

The Fifth

Thirty-five years ago today — on Saturday, October 19, 1918, to be exact, and at precisely this same hour — a group of 15 far-sighted business executives held a meeting in the Engineering Societies Building in New York. They were representatives of the country's five leading engineering societies, and they had called the meeting to organize the American Engineering Standards Committee.

At that first meeting, the Committee approved rules of procedure and a tentative constitution setting forth its scope of work and its aims. It considered correspondence from the American Gear Manufacturers Association asking assistance in preparation of a national standard for gears. It invited the U. S. Departments of War, Navy, and Commerce to join the Committee with the standing of founders. (All three accepted.) It established a budget for the year 1919 — a total of $6,000. And it moved to promote relations with the standards bodies of Britain, France, Italy, and Switzerland.

Here is a formal statement the Committee issued at that time, taken from the magazine *Scientific American* for July, 1919. "It is the unanimous conclusion of the Committee and of all of those who have been consulted who have been active in standardization work, that such an organization is urgently needed. In the past there have been many occasions when two or more organizations have formulated standards for substantially the same thing. The Committee will furnish a means by which any organization intending to define a standard can readily ascertain what others are interested and should be consulted about it. It provides definite machinery for securing cooperation and preventing duplication of work. *At present there is no such means.*"

From what I hear and read of that first meeting, I am impressed by the fact that the hopes, fears, and problems of those men were strikingly similar to our own today. They had seen in a World War that the American

Milestone—
Mechanization to Automation

An Address Honoring the Five Founding Societies of ASA

by Roger E. Gay

system was capable of tremendous production and tremendous waste. They had seen the confusion and dissipation of resources that result when men and nations speak different industrial languages. They were faced with the unknown consequences of an enormously expanded productive capacity. Technology operating under the forced draft of war had brought forth new products and whole new industries that were already displacing other products and other industries.

And so these 15 men, in the closing weeks of the war, came together to lay the foundations for sound engineering standardization. I have called them far-sighted, and I think with good cause. The constitution they drew up has served as a guide throughout the 35 years of their organization. It has been amended; its scope has been broadened; but its basic objectives and basic principles have never changed.

Two years after it was founded, this association came to the first of four great milestones. Each milestone came at a moment of crisis in the standards movement. Each now marks a spot where important basic decisions were made and a new course was laid down.

In that year, 1920, the founders reorganized the AESC in an effort to broaden the standards movement. They invited all the technical societies, trade associations, professional groups, private companies, and governmental bodies that were interested in national standards to join them. The AESC mission was now to act as the national clearinghouse for standards. Its function was to simplify the development of standards; to eliminate duplication and variation of standards; and to weld conflicting standards into a single, generally accepted standard designated "American Standard."

The second milestone came in 1928 when the structure of the organization was changed from a committee to a full-fledged association. A Board of Directors was created to handle administration policy and finance. A standards council representing all member organizations was established to supervise the technical activities. The name was changed to the American Standards Association.

The third milestone came in 1945. The ASA had survived the depression and had lent its energies to developing American War Standards during the second World War. At the end of that war, the questions arose: what is to happen to the ASA and to the voluntary standards movement in America?

The answers were given in 1946 when a group of top businessmen, headed by Charles E. Wilson, then president of General Electric Company, reached an historic agreement with the Secretary of Commerce of the United States.

Under this agreement, the Federal Government endorsed ASA as the na-

ASA's President and Its First Chairman — Roger E. Gay (left) and Professor Comfort A. Adams. Said President Gay: "As its first act at that first meeting, the Committee elected a very distinguished gentleman as its chairman. He was Dr Comfort A. Adams, of the Harvard Engineering School, president of the American Institute of Electrical Engineers, and member of the American Society of Mechanical Engineers. The standards movement of this country owes an infinite and unrepayable debt of gratitude to Professor Adams for his wise and patient leadership during the founding years of the national movement."

United Press Photo

Mr Gay is president of The Bristol Brass Corporation, Bristol, Connecticut, and president of the American Standards Association. This paper was presented at ASA's thirty-fifth Annual Meeting, October 19, 1953.

Professor Adams meets ASA's Managing Director. Left to right — Professor Adams; Cyril Ainsworth, ASA Technical Director; Vice Admiral G. F. Hussey, Jr, ASA Managing Director.

tional clearinghouse for standards and encouraged industry to implement the association for its post-war role. ASA removed all restrictions from its scope enabling it "to handle any standards. . . ."

The voluntary standards movement of this nation passed its fourth great milestone in 1951. This was the historic reversal of Federal Government policy towards industry standards and the people who make them.

You are all familiar with what Federal policy had been in the past — with the disinclination of the government agencies to accept tested industry standards on the hundreds of thousands of articles of common use that it bought each year. You doubtless know, too, the bad effects that arose from that policy — effects that are inevitable when standards and specifications are arbitrarily changed in a mass production economy.

Just two years ago, the key procurement agencies agreed henceforth to base Federal and Military standards, wherever possible, on recognized industry and technical society standards. They declared further that they would cooperate more closely with industry groups in standards work.

The Federal Government has already adopted a number of American Standards, in whole or in part, by reference or by transcription. It can do this readily because all parties-at-interest participated in the making of these standards — including, for the most part, the Federal Government itself.

Today, as it closes its thirty-fifth year, ASA has a record of solid growth and accomplishment behind it. Its membership totals 114 societies and associations, and 2337 companies. It has approved 1350 American Standards, including 160 American Safety Standards, which cut across virtually every industry in the land.

Committees are now engaged on about 300 standardization projects under ASA procedures. About 4,000 individual technicians, engineers, executives, and other experts are working on such committees.

It is in the good will and support of these men, and the organizations they represent, that the true measure of growth and accomplishment of ASA is to be found. Without them, there simply would be no ASA. These men, these organizations, created the 1350 American Standards now in existence. ASA did not make them; ASA simply provided the machinery under which many of them were made, and the judicial procedures under which they were certified as true national standards meeting ASA requirements.

In the creation of these 1350 American Standards, there were difficulties to be ironed out as to the amount and direction of effort to be contributed by each party. There were misunderstandings to be cleared up, particularly in order that all concerned might understand that ASA is not trying to usurp the prerogatives of any body. Their efforts speak well for the statesmanship of American business, the vision of American business, and the faith of both in a great cause.

We at ASA are acutely conscious of this last point. Our constitutional directive calls upon us to promote knowledge of standards and the use of standards. In so doing, we are aware always that we are promoting the work of others — work with which in some cases we had no connection until it was completed. We have never claimed credit for that work, and we try hard to avoid the appearance of claiming credit for it.

Now the voluntary standards movement in this country is approaching a fifth great milestone — a fifth point where important basic decisions must be made and a new course laid down.

We Americans are obviously on the threshold of a new phase of the national economy. Perhaps we are even headed into a new chapter of the Industrial Revolution itself. In either case, the leaders of American business and industry must soon decide just what they want of the standards movement and of the American Standards Association in the new and strange economy we are about to enter.

For 35 years we have been using only two cylinders of an eight-cylinder standards engine. We have been using standards chiefly to solve problems, to reduce confusion, and to meet existing emergencies. That, of course, is not the proper function of standards. It is not the kind of standards activity that will serve us as we need to be served in standards in the critical years ahead.

Consider for just a moment what has happened to the American economy in the past twelve years, and then consider the short-range effects of those developments. We have had three great waves of industrial expansion in that time. First, in the space of the four war years we built a new economy for the nation. Then, in four post-war years, American industry converted that economy to peacetime uses, and poured some 115 billion dollars in new and improved plants, to create a second enormous spurt in our productive capacity. And then, after the invasion of South Korea, we virtually laid down a new industrial base for the nation. Our productive capacity today is nearly double what it was in 1940; and considerably more than half of that increase has come in the past three years.

Today we have over-capacity in everything except aluminum, some kinds of steel, and nickel. Federal expenditures are declining at the same time that private industry is ending much of its own capital expenditures. The steel industry, for instance, plans no new ingot capacity for some years. The Federal Government, which has issued about 27 billion dollars in certificates of necessity to 233 industries, is now closing out that program.

On top of this, industry is operating at an abnormally high break-even point. Fixed or semi-fixed costs are so high that a company must turn over about twice as much dollar sales per employee to pay his wage and maintain the same profit as before 1940. At the same time, economists scare us with the information that the American standard of living is so high that our people could postpone 40 percent of their buying for four years and still maintain a decent standard of living.

There are many favorable factors here, of course, ranging from the stimulus of possible tax cuts next year to the great increase in the number of new families coming along. It is entirely probable, as the Standard Factors Corporation states, that the peace in Korea will bring "the finest surge of competitive effort and the most amazing output of new products we have ever seen." The point I am trying to make is simply this. Virtually every expert writing on this subject today, regardless of his point of view, agrees on one point — that our hope for meeting the grave economic problems of over-capacity and high break-even point lies in cutting costs through better equipment, new products, new processes, and all-around added efficiency. The experts, in their text-book language, call it raising the nation's productivity —"improving the combination of elements that determine the effectiveness of effort in production."

That is what we have been doing in this country for almost a century, at the rate of about three percent per year. It is an American formula that has made us economically great and that no other nation seems able to copy or even comprehend.

Now the experts tell us that we must continue to do more of the same thing — but do it a great deal better. I think they are right. It seems apparent to me that the marginal producer who does not modernize — the company that cannot carry some of its capacity idle in slow times and make it pay with added efficiency — that company is going to get hurt in this coming surge of competitive effort. The nation that does not cut the price of its commodities through added efficiency is going to get hurt in the markets of the world. *Factory* magazine recently estimated that our output per worker must climb 43 percent by 1960 — twice as fast as between 1940-1950 — in order to maintain our present standard of living.

There are many ways and many areas in which a company and an industry can cut its costs. Better, more intense application of the principles of standardization is one of those ways. I need not tell this audience the part that standards have played in building the American economy in this century. I would like to stress, however, the fact that of all the elements that combine to determine the effectiveness of effort in production, standardization is still one of the most promising.

I do not want to claim too much for standardization. It is a critically important factor, but it is not the only answer, and it is not a cure-all. On this point, I am sometimes reminded of the story of the three tailors who operated side by side on a New York street. One tailor put up a big sign: Best Tailor in New York. The second tailor put up a bigger sign: Best Tailor in the United States. The third tailor then put up a modest little sign reading: Best Tailor in this Block. Well, we in the standards movement are like the third tailor. We like to keep our claims on a modest level. We simply believe that standardization is the last great frontier of the American economy where major increases in efficiency and substantial cuts in costs can be made.

I have spoken of some short-range changes in our economy. There are long-range changes in sight which I am scarcely able to understand, let alone try to explain. They lie in new products and new processes that push back our horizons into a new world in a new century.

Atomic energy is one of these. How can we assess the effects on our economy of a fuel, one pound of which holds the energy of about three million tons of coal?

Electronics is another. Two hundred years ago we began to attach machinery to our tools, with a man at the handle for control. A few years ago we began to replace the man with routine automatic controls. Now we are teaching our machines to think. Their brains can already store information, profit by experience, and beat their inventors at a game of chess. And we are only in the first stages of this new science.

These machines open up entire new vistas of mechanical production. *Business Week* thinks that this kind of production, called "automation," can give us strides in productivity that will make the advances of the past 50 years look small. It predicts bigger factories producing more goods with fewer people and believes that automation will spread to almost every industry. It adds that management will then be faced with problems of unheard-of complexity and magnitude.

This is the fifth great milestone I spoke of earlier. This is the question that American businessmen must soon ask themselves. In such a strange economy of automation, is American industry going to try to continue using standards as it has used them in the past — improperly, inadequately, inefficiently? Is it going to keep on using standards to solve old problems, to meet recurring emergencies, to reduce the general confusion? Or are we going to use standards as they are meant to be used — to keep problems from arising; to stop emergencies from ever happening; to eliminate the confusion; to serve as the key elements in management control, coordination, integration, and planning?

As we enter the age of the electron and the atom, the standards record in these new industries, frankly, is spotty. A good start has been made in stand-

ards in certain areas of the electronics industry. A new committee within the framework of ASA has been created to handle future standardization on the national level. But other areas are untouched. We are now in a situation where private industry is about to be asked into a strange new field, that of atomic power; and that industry has virtually no American Standards of health, safety, manufacture, or operation in this field. Is that good?

We hold that predetermined standards are one of the basic requirements of an orderly transition from today's mechanization to tomorrow's automation. Our plea to American industry is to build a comprehensive, integrated set of true national standards now, *in advance of need*. The alternative is to build them later in order to unscramble a mess that should never have happened.

In one of the first meetings of the American Engineering Standards Association, Professor Adams, the chairman, made this statement: "I think you cannot fail to see (he said) the tremendous possibilities and value to all industries, and to the nation as a whole, of this work of standardization. . . . If we can inject into other organizations the idea which we have evolved here — the idea of thorough, broad and comprehensive cooperation in the making of standards, then I think we will have accomplished one of the biggest jobs that has ever been undertaken in this country. It would do more to solve some of the present economic problems of the United States than anything else we could do."

These are the words of a prophet. They are as true today as when they were spoken 35 years ago. The whole problem and promise of the standards movement is contained in that statement.

The founders of this Association conceived a great basic principle. They converted it into a national cause. They created a sound organization to produce action. We are the inheritors of their principle, their cause, and their organization. As such, we are under deep obligation to live up to their record and to fulfill their expectations.

Thoughts on the Founding

Comfort Adams •

Past President, American Institue of Electrical Engineers; First Chairman, American Engineering Standards Committee (now ASA)

My first introduction to the field of standardization dates back to 1910 when my old friend D. C. Jackson, at that time president of the American Institute of Electrical Engineers, appointed me chairman of its Standards Committee, then in its early youth.

One of the first obstacles encountered by the AIEE Standards Committee was overlapping of the fields of the several engineering societies. First we made the experiment of transmitting to our fellow societies copies of all of our documents which seemed to lie in the over-lapping fields, with the suggestion that the other societies do likewise.

Unfortunately we did not meet with the generous response necessary. We concluded that the desired cooperation could be obtained only through the organization of a Standards Committee covering the whole field of engineering.

There were many informal conferences with representatives of the other societies, including some discussion in the engineering journals. The general attitude towards standardization has changed so much from those days that it would probably be difficult for most of our recent adherents to appreciate the number of obstacles to be overcome, and the educational effort involved.

After some months of this preliminary work, the Board of Directors of AIEE, at its meeting June 28, 1916, acted on the recommendation of its Standards Committee. It voted to invite each of the four other societies to appoint three members to an Organization Committee, to explore the whole problem, and if possible to present a plan of organization.

It was about 28 months from the date of this vote or more than three years from the first conviction as to the need, to the final report of the Organization Committee.

One major obstacle is present in all efforts to establish cooperative organizations. This may be broadly referred to as "sovereignty" and becomes almost insurmountable in the case of international cooperation such as the United Nations.

The fact is that no real cooperation is possible without the sacrifice of some degree of sovereignty, not only of the organizations involved but sometimes of individuals. In all cases the problem lies in the fear of losing something which at the moment seems more important to some of those concerned than does the ultimate objective. Often this fear is coupled with distrust of the other cooperating agencies or of individuals connected therewith. Initially one of our most hesitant conservatives was our old friend Edgar Marburg, founder of ASTM, who later contributed so much to the success of our committee. At the beginning he was distrustful of my personal objectives. But he changed completely after one personal conference. At the last meeting of the Organization Committee which he attended he was ill and under the doctor's orders, and took no part in the discussion. Noting this fact, one of the other members of the committee asked for his opinion on a controversial question. His answer was that he was following the doctor's orders religiously since he was apt to get over-excited when participating in such a discussion. "But," he said, "anything that is acceptable to the chairman is acceptable to me."

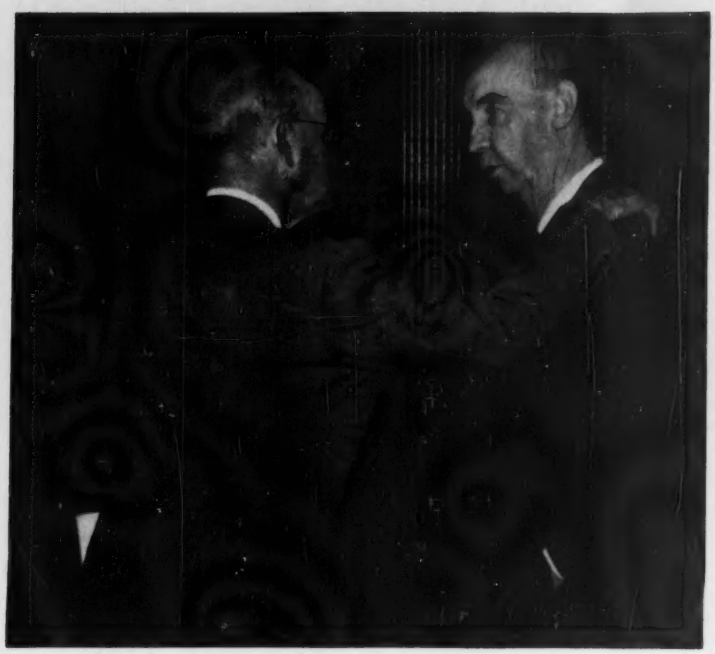
It was an honor to be associated with that group of eminent men, several of whom were past presidents of their sponsor societies.

On the personal side I disclaim any credit except that of an enthusiastic spark plug riding his major hobby, with a deep conviction as to its practical value. The results in this case seem to support that conviction.

One of the penalties of growing old in the harness seems to be the passing

These reports are extracts from papers presented at the Founders' Day meeting.

# of a National Standards Association



Professor Adams greets an old friend. Dr P. G. Agnew (right) became secretary of AESC a year after its organization and served through its various reorganizations until 1948.

of so many old friends. However they live not only in our memories but also in the structures which they have helped to build.

In this case the structure is ASA. This Commemorative Message is addressed to the memory of the 15 men who served faithfully and well in laying its foundation. I am glad to be counted as one of that group.

Charles W. Bryan, Jr •

Past Director, American Society of Civil Engineers; President, Pullman-Standard Car Manufacturing Company, Chicago

The American Society of Civil Engineers, both as a Society and as representing a large group of technical men interested in private and public improvement, has reason to be interested in and to support the development of standards in the Civil Engineering field which the American Standards Association has done so much to promote.

Dr Leslie C. Beard, Jr •

President, American Society for Testing Materials; Assistant Director, Socony-Vacuum Laboratories

As our Society continues to expand its research and standardization activities, we shall be bringing new proposals and problems for your study and approval. There is, we believe, a wonderful field of opportunity for ASA in this complex economy of ours. The conservation of our technical talent and the prevention of duplication of effort are today even more pressing than in 1918. We shall attempt to continue in ASTM to do our part in pushing forward the work of the American Standards Association.

Frederick S. Blackall •

President, American Society of Mechanical Engineers; President, Taft-Peirce Manufacturing Company

The cooperation that has existed between ASA and the great number of organizations which work with it in the establishment and promulgation of standards and codes is in the finest American industrial and technical tradition. I thank you for the opportunity afforded me to pledge to ASA the continued and wholehearted cooperation of The American Society of Mechanical Engineers.

Theodore B. Counselman •

Vice-President, American Institute of Mining and Metallurgical Engineers; Manager, FluoSolids Sales, The Dorr Company

So well have matters pertaining to standards been handled by ASA that AIME has not found it necessary or desirable in recent years to have any of its own committees take a specialized or active interest in this field. Rather, a large number of the companies by which AIME members are employed belong to ASA and profit from its work. The Institute had gladly accepted invitations to have representatives on committees set up to develop standards in the mining, metallurgical, and petroleum fields. It now has representatives on 21 such committees. I congratulate the American Standards Association on its accomplishments for the benefit of both the producer and consumer at the same time, and wish it well in the years to come. It is still a young organization, with all the vigor of youth.

R. C. Sogge •

(Executive Department, General Electric Company), President, United States National Committee, International Electrotechnical Commission

"Events of the past few decades have operated to thrust the responsibility and opportunity for world leadership in the engineering standards field on the United States," Mr Sogge said. "In

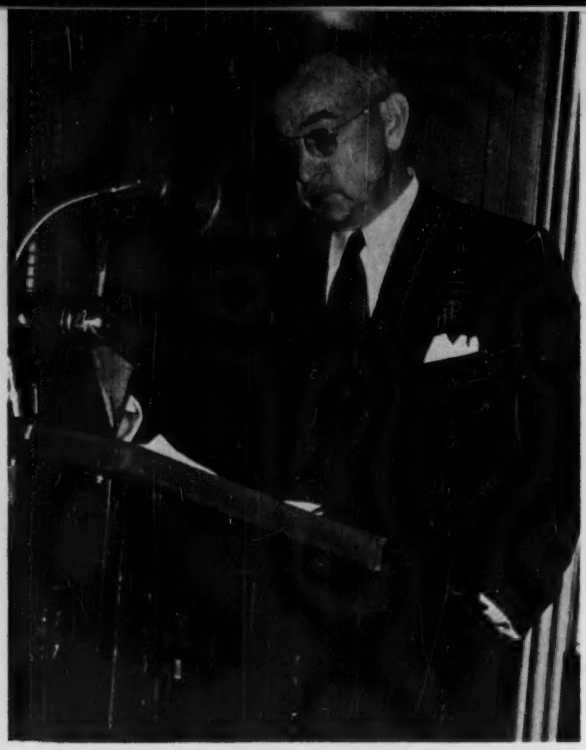
(Mr. Sogge's report of the technical work done by committees of IEC at its meeting in Yugoslavia in 1953 was published in STANDARDIZATION, October 1953).

this case we are fortunate in having membership in an organization which has for its objective to facilitate the coordination and unification of national electrotechnical standards.

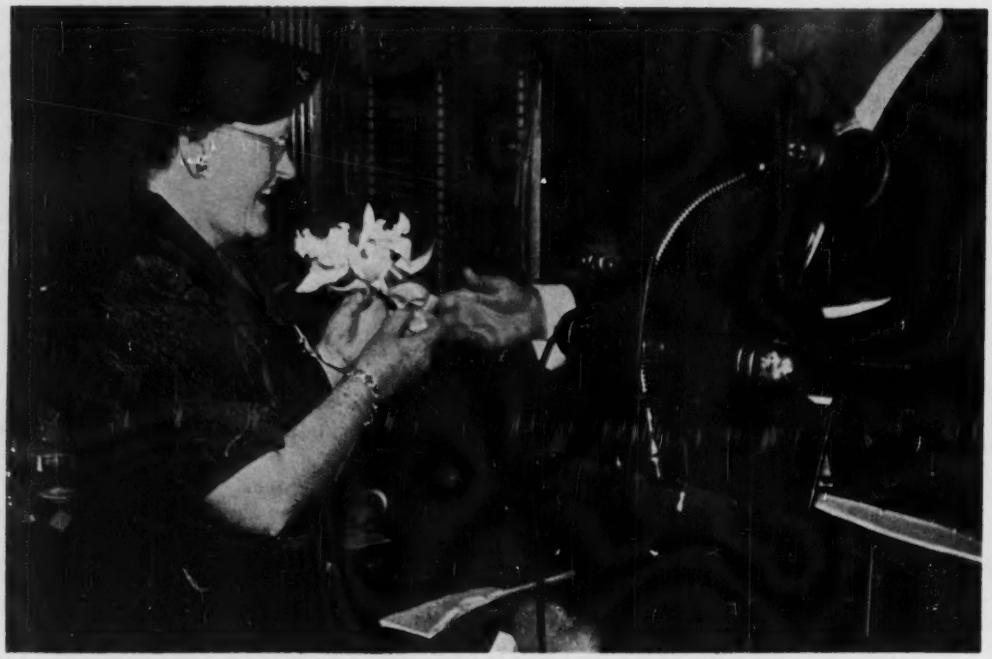
"The activities of the International Electrotechnical Commission cover practically every branch in the electrotechnical field and may be divided into two broad categories:

"(*a*) Work aiming at bringing about a better understanding between the electrical engineers of the various countries by making available to them common means of expression — unification of the electrotechnical nomenclature through the publication of an international vocabulary in several languages; agreement on units and quantities used in electricity, also on symbols and notations; systems of units; the setting up of international graphical symbols for use in drawings of electrical installations.

"(*b*) The preparation of standards for electrical machinery and apparatus. This involves the study of problems regarding the electrical properties of materials used in the construction of electrical equipment, the unification of guarantees to be given for certain types of equipment, agreements on ratings, testing methods, quality, safety, and dimensions to ensure interchangeability of machines, apparatus and accessories."



R. C. Sogge, President, United States National Committee, International Electrotechnical Commission.



Others remembered the AESC organization. Miss Marie Ounan, now executive assistant and secretary to the Executive Secretary of the American Society for Testing Materials, was secretary to C. L. Warwick in 1918. Mr Warwick, executive secretary of the Society at that time, gave Miss Ounan the minutes of the organization meeting to type. Miss Ounan attended the 1953 Founders' Day meeting and received a white orchid from ASA President Gay.

Flanders and Houser Receive 1953 Medals

SENATOR Ralph E. Flanders of Vermont and Perry L. Houser of the International Harvester Company, Chicago, received the top honors in standardization for 1953 at the Annual Award Luncheon October 21.

Roger E. Gay, president of the American Standards Association, presented the Howard Coonley Medal to Senator Flanders "in recognition of outstanding services to national economy through voluntary standardization." Among those outstanding services was chairmanship of Committee B1 on Standardization and Unification of Screw Threads and of the first meeting by representatives of Britain, Canada, and the USA which eventually resulted in agreement on the Unified Thread.

Mr Houser was awarded the Standards Medal "in recognition of service in the development of voluntary standards." His outstanding service has been as secretary for nine years and chairman for the past six years of Sectional Committee B5 on machine tools. He has helped to harmonize the efforts of the many technicians and executives working on this committee and its 28 subcommittees. He has also helped the Government build up and standardize its metalworking facilities.

In presenting Senator Flanders for the Howard Coonley Award, President Gay told the story of his career — the story of a great man, and also of America itself.

Ralph Edward Flanders

Ralph Edward Flanders of Springfield, Vermont, and Washington, D. C., was born 73 years ago, the oldest of nine children, the son of a farmer, the grandson of one of the country's early advocates of abolition of slavery. His family moved to Rhode Island where, as a boy, Ralph Flanders was "bound out" for a year at a time to farmers who were in need of help and were willing to support him. He entered a country school at the age of eight and finished four years of high school at 15.

On finishing school, he entered a machine shop to learn the machinist trade under the old-fashioned apprenticeship system. Here is what he has written about that. "To become an apprentice in those days, it was necessary for my father to put up a bond of $100 cash to make sure that I would complete the term. This sum of money, which was by far the largest I had ever seen in my life at one time, my father had to borrow. The apprenticeship was one of three years, the first nine months of which were paid for at the rate of four cents an hour for a 60-hour week. During the long winter, aside from a few quarts of milk sold daily to the neighbors, this sum represented the only cash income of the family."

In three years he was a journeyman machinist and in five, a skilled draftsman. While there he wrote a technical volume entitled *Gear Cutting Machinery*.

When he was 19, the employees of the machine shop drew up a petition for Saturday afternoon holidays during the summer months. They chose Ralph Flanders to present it to the boss, possibly because he was the only one there with the nerve to do it. Whether there is any connection or not, I cannot say, but some time later he left to work at several different jobs. One of them was designing an automatic paper-box machine which is still being made.

In 1905, at the age of 25, he took one of those surprising steps that abound in the career of this many-sided man. He became associate editor of the trade magazine *Ma-*

chinery. He stayed there for five years, became an engineer for the Fellows Gear Shaper Company in Springfield, Vermont, and married the daughter of the governor of Vermont. In 1912 he became a director and manager of the Jones and Lamson Machine Company, builders of machine tools. Twenty-one years later he was its president.

In those 21 years, Ralph Flanders was active in many fields. He designed and invented machine tools, including his company's famous automatic screw-thread grinding machine. In the NRA days he became a dissenting advisor to the Department of Commerce. He served on the Vermont Planning Commission. He became president of the New England Council. He became research chairman for the Committee for Economic Development.

In the 1930's he wrote two books on economics — *Taming Our Machines* and *Platform for America* — and coauthored another titled *Toward Full Employment*. In his spare time during these years he made himself an amateur astronomer, an expert chess player, a musician, a fisherman, lecturer on business administration, and author of many articles on technical, economic, and general subjects.

During the war, Mr Flanders was director of the machine tool division of OPM and was chairman for machine tools of the Combined Production and Resources Board. Near the end of the war he took another leave of absence from his company to become a banker — he was called upon to do a trouble-shooting job as president of the Federal Reserve Bank of Boston. About this time, the American philosopher John Dewey met him and called him "the most enlightened industrialist I have ever met."

In 1946 Mr Flanders became Senator Flanders, on being appointed to fill the unexpired term of United Nations Delegate Warren Austin. He ran for election a few months later as a "Yankee Republican liberal"— and, because of his fairness and good labor relations in his plants, had CIO endorsement for his candidacy. His record since that time is a matter of public record and common knowledge. His work as chairman of the Senate committee studying the nature and function of business profits was outstanding, and brought cheer to American business at a time when it needed it most. He is now a member of the Committee on Armed Services and the Committee on Finance.

Senator Flanders is a past president of the American Society of Mechanical Engineers, and received that Society's Worcester-Warner Medal. He was vice-president of the American Engineering Council and received the Council's Hoover Medal. He is a past president of the National Machine Tool Builders Association. He holds eight honorary doctor degrees from American universities.

It is for his work in standards, of course, that we are honoring Senator Flanders today. That work has been distinguished by persistence, foresight, and unselfishness.

Eight years ago he wrote in one of his articles: "One of the outstanding characteristics of private enterprise is sustained growth. It also has a certain degree of wastefulness." It is this degree of wastefulness that Ralph Flanders has attacked in his long service to standardization. He brought to this field a deep reservoir of information experience. An engineer, he saw at once that standardization is more than an engineering function — that it is a key to the problems of management and administration.

In the years 1920-1933, Senator Flanders served as a member of the National Screw Thread Commission of the Federal Government.

As manager, and later as president of the Jones and Lamson Machine Company, he initiated the preparation and adoption of standard cylindrical fits in his own concern. During the 1930's and 40's, he designed and introduced machinery for screw thread grinding which resulted in making it commercially easy to get much closer standard fits on screw threads than had previously been possible.

In 1931 he was appointed as a member of Committee B1 of the American Standards Association, known as the Committee on Standardization and Unification of Screw Threads, representing the ASME. He became chairman of this committee in 1929. As chairman, he was the presiding officer of that first meeting in 1943 in New York at which Britain, Canada and the U. S. began negotiations which were five years later to result in the signed unified screw thread agreement among the three countries. Senator Flanders has rendered many services to the cause of standardization, but if he had done no more than preside at that historic meeting, the standards movement would be always in his debt.

Senator Flanders (left) receives Howard Coonley Medal from ASA President Gay

THE AMERICAN STANDARDS ASSOCIATION

in recognition of outstanding services to national economy through voluntary standardization awards

THE HOWARD COONLEY MEDAL FOR 1953

to

RALPH EDWARD FLANDERS

As chairman of the ASA Committee on Standardization and Unification of Screw Threads, he presided over the first of the conferences that resulted in one of the outstanding examples of international cooperation of our time. As senator and elder statesman, he has helped to build a standards bridge between industry and government. Throughout almost sixty years as engineer, business executive and public servant, he has advanced the great cause of voluntary standards for the good of industry, government, the people and the nation.—*From award citation.*

Standards - The Liberator

Excerpts from acceptance speech by Senator Ralph E. Flanders following presentation of the Howard Coonley Medal.

I have known Howard Coonley well. This medal represents not only recognition by the Association but also recollection of the friendship of a capable and kindly man.

The complications and difficulties of screw thread standardization required the development of completely new screw thread production and gaging machines, tools, and processes. The effect in production was profound. The more accurate of the new standards required ground thread taps for the tapped holes and ground thread chasers for the external threads. Providing these was no easy task, but after years of developing thread grinding, they are now commonplace in all establishments which pretend to do good work.

The thread grinding process was later extended to the production and sizing of screw threads of components, largely for external threads, but also to a considerable extent for internal threads. In this thread grinding development, I have had the privilege of playing an important part.

Much yet remains to be done in extending the standards themselves. In a house recently built, I noted that the door knobs were so loosely fitted to the threaded spindle which opeartes the latch that they sagged down noticeably out of line. Until and unless they are tightened by the set screws provided for that purpose, they are unusable. Class 1 fits would have been adequate for this use and they could have been obtained as cheaply as the Class Zero fit actually obtained. There is room for missionary work on the part of every purchaser of metal-working or other goods which include screw threads. If they are made to established standards, they can be made cheaply and will enormously improve the life and dependability of the product which makes use of them.

I have often wondered whether the ordinary purchaser of machinery — household or otherwise — realizes the extremes of accuracy involved in the product which he purchases, whether it be electric refrigerator, vacuum cleaner, or whatever. I even wonder whether the mechanic who makes these modern household conveniences has any notion of the fineness of the fits his gages call for. I think one may say with some confidence that, in such products as electric refrigerators, many of the dimensions have to be right within tens of thousandths of an inch. That means that the gages by which they are measured have to be right within hundreds of thousandths of an inch. Finally, that means that the master standards by which the working gages are calibrated have to approach one millionth of an inch in the degree of their known accuracy. In other words, the unit of measurement would be one two-thousandths of the thickness of a hair. Measurements within this range of accuracy are entirely feasible and are carried out daily under commercial conditions.

All this standardization leads to great serviceability and a cheapening of the production cost of serviceability. It therefore effects a combination of cheapness and serviceability which is all to the good so far as the purchaser and consumer are concerned.

During the early years when the American Standards Association was expanding its operations, there was much discussion to the effect that this work should be done by the government. Having had experience in screw threads both under government auspices with the National Bureau of Standards and under private auspices with the American Standards Association, I speak up strongly for the private institution in this matter. It protects the consumers' interest; it provides for the highest degree of dimensional quality at a reasonable cost; it brings government officials into its panel of experts in setting a standard and, altogether, has shown commendable enterprise and efficiency.

Yet, there is still a group both in and out of government who feel that standardization is properly a government responsibility. It may be that stronger demands for that will be made in the years to come, although I hope not. As I said in an article in the *Atlantic Monthly* a few years ago, "I think that neither now nor later can we afford such a reversal of our economic and technical processes. Our standards are now basic to our industrial economy. They will be more important than ever as we organize resistance against aggressive forces. When this crisis ends, we must work to achieve a higher degree of harmony and order in our world; to relieve the strain of modern living by simplification; to increase the standard of living through more efficient production of interchangeable parts in a free market. We must use standards as 'the liberator that relegates the problems that have already been solved to the field of routine, and leaves the creative faculties free for the problems that are still unsolved.'

"I say that this is not work for the master planner. Creative dynamic standards are not composed on the higher levels and handed down by decree and proclamation. They are formulated by the voluntary agreement of all groups concerned. They must be worked out by the people themselves."

Left to right:—Roger E. Gay, ASA president, reads citation awarding the Standards Medal to Perry L. Houser.

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CITATION: His record of leadership in the development and application of voluntary standards in America has set an example in his industry and in his profession. For nine crucial years he served selflessly as secretary of ASA Committee B5, dedicated to the orderly and progressive development of standards for machine tools and their components. As chairman of that committee for the past six years, he has harmonized the efforts of many diverse and distinguished technicians and executives, and has successfully integrated the important work of no fewer than 28 committees working in the broad field of small tools and machine tool elements. When called to Washington in two emergencies, he served his country well in assisting it to build up and standardize the metal-working facilities it needed to survive. He has expressed the viewpoint of his industry and his country with clarity, conviction and reasonableness in international conferences in his field. By services extending through a quarter of a century and now at their most fruitful peak, he has won distinction and honor in the world of standards and among standards men everywhere.

Standardization Represents Teamwork

by Perry L. Houser

Excerpted from address by Colonel Perry L. Houser, Supervisor of Manufacturing Research, International Harvester Company, accepting Standards Medal presented by the American Standards Association.

To me this award is a symbol, representing not solely the efforts of one individual but that of a team — a team of individuals from many facets of our American way of life, from the chemical, mining, automotive, electrical, plumbing, agricultural machine tool, cutting tool, railroad, utility, and all the other industries. Their combined efforts have produced certain rules, certain limits, and yes, certain concessions, that you and I know as American Standards.

To me it is a privilege, as well as a pleasure, to work as one of this group

Those of us who are engaged in this work know that it takes many hours and a number of meetings where sometimes there are friendly, temporary, differences of opinion before a proposal is developed that is mutually acceptable to both producer and user interests.

And as the finished standard is introduced into your own company standards program, it is with the full knowledge that it represents the pooling of experience and know-how, the marriage of the ideas of many individuals from many segments of our industrial machine. This is what you bring to your company by the adoption of an American Standard.

In spite of the fact that hundreds of American Standards have been, and are being used in all phases of our economy, it is my belief that we who are personally engaged in the development of standards must somehow, some way, get more executives, technical and other personnel to grasp more fully the fact that an American Standard represents this pooling of experience and know-how of many skilled individuals.

In March, 1925 I started on my first job, filing burrs on gear teeth, for the International Harvester Company at their Fort Wayne, Indiana Plant, and moved from one job to another. Some were rather obnoxious, some were to my liking. One assignment was classified as "Foreman of Tool Service." This really was the first spot where I appreciated the word "standard" in connection with drills, reamers, lathe tools, taps, cutters, dies, etc. Later, the Tool Research Program at that Works became my responsibility. This too involved extensive use of standards.

In 1937 I was transferred to the company's General

Office in Chicago, and placed in charge of the company-wide Tool Standardization Program. On this assignment I became quite "inquisitive" about standards. How many were there, what did they cover, who made them, how did they come into existence? Somehow the word must have been transmitted to Mr. W. C. Mueller, then chairman of Sectional Committee B5 on Small Tools and Machine Tool Elements, because in 1938 I found that I had been appointed secretary of B5. From that point on, the intriguing subject of standards, their development and application, has been of major interest to me. It goes without saying that whenever one is intensely interested in this subject he just can't help spreading the gospel of standards, publicizing the American Standards work.

During the 5½ years that I spent in military service in Washington, D. C. the value of standards was almost continuously in evidence. In expansion of the machine tool, cutting tool, gage, bearings, furnace, hand tool, forging, foundry and other industries identified principally in the metal working field, it certainly played a tremendous part.

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Standardization represents team work, the willingness and ability to work out problems together. It is with the feeling that I am representing that team that I accept the honor that you have so graciously bestowed upon me as an individual.

Industrial Noise Symposium

Members of Exploratory Subcommittee X-2 (Bio- and Psycho-Acoustic Criteria) of ASA Sectional Committee Z24 (Acoustics, Vibration, and Shock) explained the data they have collected on relations of hearing loss to noise exposure in industrial environments. This was the first public announcement of these data. A report of the committee's findings is being published early in 1954. Copies will be $1.50 each. The following are abstracts of the papers presented at the Conference.

Sectional Committee Z24, sponsored by the Acoustical Society of America, was organized in 1932. It now has 12 approved American Standards to its credit, covering measurement procedures, laboratory calibration and tests of instruments, equipment for measuring sound, audiometric testing of individuals and groups, and definitions.

Dr L. L. Beranek •

Technical Director, Acoustics Laboratory, Massachusetts Institute of Technology; President-elect, Acoustical Society of America (Moderator)

From its inception in 1932 Sectional Committee Z24 has been concerned with the objective measurement of noise and the reaction of human beings to it. Following requests from municipalities and industrial groups for information on desirable noise levels, an exploratory group was organized to report on "permissible," "objectionable," and "injurious" noise levels. The temporary chairman found a great need for more data on which to base any conclusions and recommended the appointment of a committee with the specific task of studying the relation between noise and hearing loss. Professor Rosenblith was appointed chairman in May, 1952, for a term of two years. Since the question seemed urgent, he requested the cooperation of the medical profiustra and of other members of the Acoustical Societyort. He ated professions. The American Medical Associatelopsome groups of which were already doing work on the subject, promised cooperation. The Air Force declared that it urgently needed such information.

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Professor Rosenblith reported to the sectional committee on November 12, 1952, that in view of the urgency of the situation the group was in need of a budget to permit employment of a technical aide. Money was raised from military sources, and Professor Wayne Rudmose was employed as technical counsel to the committee. His task was (1) to seek out reliable data on hearing loss and related exposure to noise in industry; (2) to organize and evaluate these data; and (3) to submit the collected evidence to the subcommittee for further evaluation as well as study and action.

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Professor Walter A. Rosenblith •

The composition of the subcommittee as well as the pressures of the situation determined us to give the industrial noise problem first priority. A certain number of criteria reported in the literature had aimed at the establishment of so-called "safe" levels. Close examination of these criteria showed that in practically all instances the validating evidence was missing. This state of affairs outlined our task for us: we had to act as a fact-finding body and not as an opinion-collecting agency. We were in need of a technical counsel whose job it would be to gather the data that were already available in industry and prepare them for committee action. We as a committee

The Panel Industrial Noise Symposium (left to right) — Dr Hallowell Davis; Dr Walter A. Rosenblith; Dr L. L. Beranek (moderator); Dr H. Wayne Rudmose; Dr Aram Glorig

could obviously not run our own experiments, especially since the number of years of exposure involved had to exceed by far our term of office and since answers of some kind were needed soon.

The technical counsel's mission was, as we said, concerned with the gathering of data relating hearing loss to noise exposure. In measuring noise exposure, we need to know more than just the over-all sound pressure level. We need to know what the distribution of sound pressure level with frequency is, in other words, the sound pressure level in various octaves. We need to know for how many years a man has been exposed and whether he has been exposed continuously (eight hours a day a full working week for how many years). We need to know what kind of noise the man is working in — is it steady noise or intermittent noise — and how one should go about measuring that noise. Sound level meters are notoriously blind in following the sudden peaks in sound pressure that characterize impulsive noises.

There are various ways too of measuring hearing loss.

Dr Hallowell Davis •

We have gathered two sets of measurements — one on noise; the other on hearing loss. In both of these measurements instruments constructed according to American Standards were employed. Measurements are the essential basis for criteria and standards but they are not significant alone.

Human problems are also significant in this area of industrial noise. For example, there is the general question "What happens to the human who suffers a hearing loss?" This raises questions concerning loss of wages, questions of social disability, questions concerning whether the person is able to carry on his everyday contacts.

On the other side, the cost might be estimated. What would it take to protect every individual and to reduce the noise at the source?

The general objective of standards and criteria in this area is to make some kind of reasonable compromise between the economic problems and the human problems and to phrase that compromise in explicit technical terms.

The are two extreme positions and a middle position that have been set before the X2 Committee in the course of its discussions.

(1) One extreme position is that there should be no value placed on a physical injury except as it causes a wage loss. This strictly economic viewpoint was one of the bases of the original Workmen's Compensation laws.

In this sense, hearing is of very little value. It causes very little wage loss because in industries in which hearing loss tends to occur, people working in the very intense noises are unable to use their hearing while on the job. Therefore, loss of hearing is not a handicap.

(2) At the other extreme, if any bodily function is injured in any way, there seems to be a feeling that someone ought to be liable, something should be done about it, and some sort of recompense be made available.

This extreme theory could lead to compensation awards running into truly extraordinary figures, especially if all frequencies were to be weighted equally and if small losses were to be considered as serious as considerable ones.

(3) The intermediate view, which I believe is much more acceptable to public opinion, is based on the concept of social disability. In other words, the ability of the person to hear everyday speech is the yardstick and ultimately the price tag is based on it.

The graduations on this yardstick still need to be clarified. With this point of view, however, the loss of a few decibels of acuity and also losses confined to the high frequencies, do not have much monetary value because they are not needed in order to hear and understand everyday speech.

Some progress is being made toward clarifying the code for the medico-legal definition of "disability of hearing," that is, for measuring the percentage of dis-

ability in terms of measurements of hearing loss, as needed by the courts and labor commission.

Furthermore, the courts and the legislatures are now in the process of establishing basic rules concerning compensation for hearing loss. The States of New York and Wisconsin are particularly active in this area.

It would be most helpful if legislative and judicial bodies — together with medical groups — could agree on a characterization of hearing losses that standards should be designed to prevent.

The data that Dr Rudmose is going to present do give some information on the probability that a given loss of hearing might have been caused by a given term of exposure to some particular noise. This is going to be helpful in the responsibility for a given hearing loss. But in writing standards and criteria, what should be the concept in our minds? Should it be to protect the average worker for a lifetime of work in such noise? Or should it be to protect 90 percent of the workers? Or maybe 99 percent? Or should it be 100 percent?

Dr H. Wayne Rudmose •

The selection of the data was my responsibility. Members of this committee had a pretty good idea where the information was that we were after, so it was a question of going not everywhere in American industry where it was noisy but only to those places where data existed that could be presumed to be usable. For example, we have to know about the conditions under which the hearing loss had been measured. We have to know a great deal about the noise. We must know also about the records of the people that were being studied — how long they have worked and in what kind of noise.

If you have no beginning audiograms on these people, or "preplacement audiograms," as they are called, then you must go into their histories and find out where they have worked before, what kind of noise exposure they have had, and so on. From population surveys we know that people's hearing changes with age. This loss of hearing is called "presbycusis." (Here Dr Rudmose showed charts explaining how one can correct for loss of hearing due to age before trying to relate hearing losses to the effects of industrial noise.)

One particular study made it possible for us to do a fairly detailed survey of the problem of continuous exposure to steady noise. This study represented a reasonably homogeneous situation. The hearing of all of the people involved was measured by the same techniques. They had different jobs and the noises that went with these jobs were different too.

(Dr Rudmose continued his talk using as illustrations charts that will appear in the published report. He explained that the basic study resulted in the development of trend curves that provide a means of estimating the effects on hearing of continuous exposure to steady noise. An audiometric study of airline pilots showed that average hearing losses sustained after intermittent exposure were lower than those found elsewhere after continuous exposure to similar noises for the same number of years. This study also provided a clear illustration of individual differences in susceptibility to noise.)

The most rapid shifts in threshold with exposure time were encountered in a study of drop-forge operators, an illustration of continuous exposure to impulsive noise.

The reduction in hearing loss after cessation of exposure was illustrated in two studies. On the average, the amount of recovery was small. Young people with small permanent hearing losses seemed to show more recovery than older people with larger permanent losses.

Dr Aram Glorig •

It is very important to us, as physicians, to know the type of a hearing loss, because this enters into the diagnosis as well as into what we can do about it.

The "noise type" of hearing loss cannot be cured by any known treatment at the present time. Once the hearing loss has been caused and is present, it is irreversible.

The problem of diagnosis is of special interest to the physician. If there are audiograms taken before the man was exposed to the noise, we can compare the audiograms taken at the time we are making the diagnosis to the one taken before he was exposed.

There are other things concerned, however. The physician must take a history so that he can make a proper diagnosis as to whether any hearing loss present can be interpreted as having been caused by noise.

Lawrence Batchelder, Raytheon Manufacturing Company, chairman of Sectional Committee Z24, was introduced as "one of the illustrious group of chairmen who have served this committee since its founding in 1932."

To the general public the crux of the discussion is, how much hearing loss can be said to be significant? And when is it a hearing loss that is compensible?

(Here, Dr Glorig showed a slide of an audiogram and discussed what can be considered average normal hearing for various age groups. Dr Glorig then discussed in an informal way the relation between various amounts of hearing loss and difficulties that individuals have in understanding normal conversation. Finally, Dr Glorig explained the extent to which individuals having considerable amounts of loss can be helped by rehabilitation procedures.)

Professor Walter A. Rosenblith *(In Conclusion)* ●

You have now heard part of the evidence that we have accumulated and evaluated during our exploratory project. You will need to read the full report to form your own opinion of it. As you read it, you will become aware of the holes in our knowledge that Professor Rudmose mentioned in his talk.

We have stressed the fact that there are no single magic numbers that can solve the problem of noise standards. We have emphasized the probability approach to the measurement of hearing loss or, if you prefer, the concept of risk.

We have pointed out that this report does not provide standards or criteria for control of noise.

Standards and criteria for tolerable noise exposure cannot be formulated until the following questions have been decided:

(1) What kind and amount of hearing loss constitute a handicap?

(2) How should noises be specified and exposures measured?

(3) What percentage of people exposed to industrial noise should a standard be designed to protect?

We feel that with the cooperation of all the interested groups it should be possible to arrive at partial answers to these questions in the reasonably near future.

MEMBERS OF THE EXPLORATORY SUBCOMMITTEE
(and some of their affiliations)

Professor Walter Rosenblith (Chairman) —
Associate Professor of Communications Biophysics, Department of Electrical Engineering, MIT; staff member, Research Laboratory, Electronics and Acoustics Laboratory; Chairman, Working Group on Industrial Noise Standards, National Research Council - Armed Forces Committee on Hearing and Bio-Acoustics; Working Group on Biological Effects of Noise; Consultant to U. S. Navy (ONR and BuMed) on effects of high-intensity noise on man; Consultant, Committee on Conservation of Hearing, American Academy of Ophthalmology and Otolaryngology.

Dr Hallowell Davis —
Research Professor, Otolaryngology and Professor of Physiology, Washington University, St. Louis, Mo.; Director of Research, Central Institute for the Deaf; Executive Secretary, National Research Council - Armed Forces Committee on Hearing and Bio-Acoustics; President, Acoustical Society of America; Sensory Diseases Study Section, National Institute of Health; Consultant, Committee on Conservation of Hearing, American Academy of Ophthalmology and Otolaryngology.

Dr Aram Glorig —
Technical Director of Research in Hearing, Department of the Army; Director, Audiology and Speech Correction Center, Walter Reed Army Hospital, Washington, D. C.; National Research Council - Armed Forces Committee on Hearing and Bio-Acoustics; American Academy of Ophthalmology and Otolaryngology (Committee on Conservation of Hearing; also Subcommittee on Noise in Industry); Board of Directors, American Hearing Society; Consultant to: U. S. Public Health Service; Civil Aeronautics Authority; Veterans Administration; Office of Vocational Rehabilitation, Department of Health, Education, and Welfare; Council on Physical Medicine and Rehabilitation; American Medical Association.

Dr H. C. Hardy —
Assistant Chairman of Physics, Armour Research Foundation, Illinois Institute of Technology; Acoustical Society of America (Committee on Noise); President, Greater Chicago Noise Reduction Council; Noise and Vibration Control Committee, American Society of Heating and Ventilation Engineers; Committee on Electro-Acoustics, Institute of Radio Engineers.

Dr Gordon D. Hoople —
Professor, Department of Otolaryngology, State University, College of Medicine, Syracuse, N. Y.; National Research Council - Armed Forces Committee on Hearing and Bio-Acoustics; American Academy of Ophthalmology and Otolaryngology (Committee on Conservation of Hearing; Subcommittee on Noise in Industry); Past President, Otological Society; New York State Study Commission for Medical Aspects of Industrial Hearing Loss; Medical Advisory Committee to New York State Compensation Board.

Dr Howard House —
Professor and Head of Department of Otolaryngology, University of Southern California School of Medicine; National Research Council - Armed Forces Committee on Hearing and Bio-Acoustics; Secretary, American Academy of Ophthalmology and Otolaryngology; Chairman, Subcommittee on Noise in Industry; Secretary, Pacific Coast Society of Ophthalmology and Otolaryngology.

Major Horace O. Parrack —
Chief, Bio-Acoustic Section, Aero Medical Laboratory, Directorate of Research, Wright Air Development Center, Coordinating Officer, USAF Program on noise and control; National Research Council - Armed Forces Committee on Hearing and Bio-Acoustics; Official USAF representative to National Advisory Committee on Aeronautics, Special Subcommittee on Aircraft Noise; National Aviation Noise Reduction Committee, Civil Aeronautics Administration; Technical Consultant to: Industrial Medicine Section, Office of Air Surgeon, Headquarters, Air Materiel Command; Air Installations Section, Headquarters, Air Materiel Command; various components of the Industrial Relations Section, Procurement Division, Headquarters, Air Materiel Command.

Dr E. J. Schowalter —
Medical Director, Western Electric Company, Hawthorne Works; Medical Committee on Noise in Industry, Industrial Hygiene Foundation on Noise; Subcommittee on Noise Effects, Industrial Noise Commission, Illinois State Department of Labor.

Dr C. Richard Walmer —
Managing Director, Industrial Hygiene Foundation; Fellow, Council of Industrial Health's Committee on Standards of Employment, American Medical Association; Board of Directors, Fellow, Industrial Medical Association; Fellow, American Academy of Occupational Medicine; American Industrial Hygiene Association.

Dr Douglas E. Wheeler —
Field Representative, Subcommittee on Noise in Industry, Committee on Hearing Conservation, American Academy of Ophthalmology and Otolaryngology; National Research Council - Armed Forces Committee on Hearing and Bio-Acoustics, Working Group on Standardization of Audiometric Screening in the Armed Forces; Noise and Vibration Subcommittee, Western Region, Aircraft Industrial Association of America; Subcommittee on Noise Effects, Industrial Noise Commission, Illinois State Department of Labor; Airplane Manufacturing Safety Council.

Dr Charles R. Williams —
Director of Applied Research, Liberty Mutual Insurance Company; Assistant Professor of Industrial Hygiene, Harvard School of Public Health; Chairman, Committee on Noise, American Industrial Hygiene Association; Technical Committee on Noise, Associated Industries of New York; Temporary Engineering Committee on Noise, Industrial Hygiene Foundation of America.

G. F. Young

Fabian Bachrach

G. L. Kerr

Hedrick Blessing

H. H. Huntzicker

Deakin Studio

M. C. Harrison

Fabian Bachrach

G. F. Wahl

New Members of ASA's Board

Roger E. Gay, president, The Bristol Brass Corporation, is continuing as president of the American Standards Association for 1954. His re-election was announced at the annual meeting of the Association October 19. Edward T. Gushee, vice-president of the Detroit Edison Company, was re-elected ASA vice-president.

The Standards Council, in charge of ASA's technical work on standards, has re-elected J. R. Townsend, Director, Materials and Standards Engineering, Sandia Corporation, as chairman. A. S. Johnson, vice-president and manager of the Engineering Department, American Mutual Liability Insurance Company, Boston, is vice-chairman.

Five new members of the Board of Directors took office January 1:— Charles G. Young, president of the Springfield Gas Light Company, nominated by the American Gas Association; Gilbert L. Kerr, vice-president, America Fore Insurance Group, nominated by the Association of Casualty and Surety Companies; Dr H. N. Huntzicker, Director of Research, U.S. Gypsum Company, nominated by the Gypsum Association; George F. Wahl, general manager, Factory Mutual Engineering Division, Associated Factory Mutual Insurance Company, nominated by the Fire Protection Group, and M. C. Harrison, president, Harrison Construction Company, member-at-large. C. W. Bryan, president, Pullman-Standard Car Manufacturing Company, nominated by the American Society of Civil Engineers, was re-elected.

Mr Young has been employed at the Springfield Gas Light Company since 1915. He became manager in 1937, vice-president in 1947, general manager in 1949 and president in 1952. In addition to his work with the Springfield Gas Light Company, he is vice-president and director of the American Tar Company, director of the Union Trust Company, trustee of the Springfield Institution for Savings, and president of Springfield Merchants, Inc. He has been unusually active in his industry and community as shown by the fact that he is past vice-president and director of the Springfield Chamber of Commerce; past president and director of the New England Gas Association; past vice-president and chairman of the Commercial and Industrial Section of the American Gas Association; director of AGA; and past president of the Guild of Gas Managers.

Mr Kerr has been in the insurance business since 1913 when he started as a claim investigator for the Casualty Company of America. In 1932 he joined the Fidelity and Casualty Company of the America Fore Group as Superintendent of the Automobile Department. In 1941 he was appointed Secretary of the Fidelity and Casualty Company; in 1946 Secretary of the America Fore Fire Companies; and in 1948, vice-president of all companies of the Group. Mr Kerr is a member of the American Society of Safety Engineers, an Associate Member of the Underwriters' Laboratories, and a member of the Executive Committee of the Federal Grand Jury Association.

After receiving his Ph.D. at the University of Wisconsin, ***Dr Huntzicker*** started with the U. S. Gypsum Company in 1935 as a chemical engineer in the research laboratories. Since that time he has held positions as Research Supervisor, Gypsum and Lime Research Division; Products Manager in charge of Lime Plants; and, since 1942, as Director of Research and Development. Mr Huntzicker is a member of the American Cement Society; American Society for Testing Materials; American Society for Engineering Education; and Sigma Xi. His community activities include membership on the Evanston, Illinois, School Board.

Mr Harrison became vice-president of the Harrison Construction Company when it was organized in 1928 with his father as president. He became executive vice-president in 1942 and president in 1947. About the company, he says, "We have two affiliate companies — Pittsburgh Asphalt Products Company and Crane and Truck Service Company." He is also president of the Tennessee Concrete and Supply Company of Knoxville, Tennessee. In his industry activities, Mr Harrison is a director of the Associated General Contractors of America, a past president and at present a director of the Constructors Association of Western Pennsylvania, and a member of the Moles. Outside his business activities, he is chairman of the Board of the Pittsburgh Opera Company.

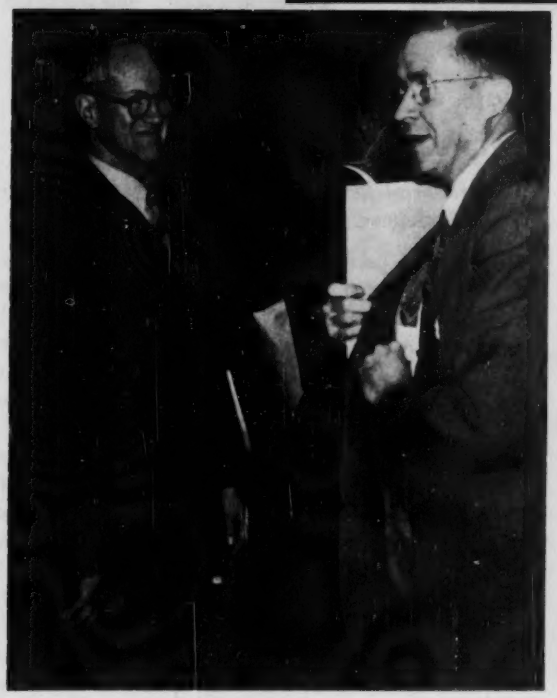
Mr Wahl started his career as engineer with the Illinois Central Railroad in 1924. In 1930 he changed to the insurance field, as inspector and adjuster for the Factory Mutual Engineering Division. In 1942 he became vice-president and director of the Blackstone Mutual Fire Insurance Company, and in 1949 general manager and treasurer of the Factory Mutual Engineering Division.

• Informal moment between morning and afternoon sessions on Quality Control. (Left to right): — F. Bruce May, Acting Director of Quality Control, Johnson and Johnson; August B. Mundel, Director of Quality Control, Sonotone Corporation; Vice Admiral G. F. Hussey, Jr (USN, ret), ASA Managing Director; Enoch B. Ferrell, chairman, Metropolitan Section, American Society for Quality Control; Dr William E. Gaunt, Director of Quality Control, E. R. Squibb & Sons; Francis C. Dupre, Superintendent of Assembly Division, Kollsman Instrument Corporation.

• J. R. Townsend, Director, Materials and Standards Engineering, Sandia Corporation, chairman of ASA's Standards Council (left), came to New York from New Mexico for the Conference. C. E. Hilton (right) has just returned to ASA from Europe where he has been on leave to serve with the Mutual Security Administration.

• A. C. Hutton, ASA Washington representative (left) with Maharaj Kishen, Assistant Director (Textiles) and S. K. Sen, Assistant Director (Electrical Engineering) of the Indian Standards Institution.

• At the Company Member Conference — C. H. Heller, Bell Telephone Laboratories (left), is a member of the Executive Committee of Sectional Committee Y14 on Drawings and Drafting Practice and is an active member of Sectional Committee Y1 on abbreviations. A. W. Meyer, Brown and Sharpe Manufacturing Company, speaker at the afternoon session, is at right.



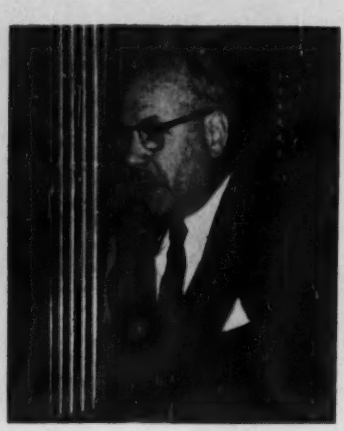
• A quip in passing, as quality control session breaks up, amuses Vice Admiral G. F. Hussey, Jr, (USN, ret), ASA's Managing Director, (left) and Dr A. T. McPherson, Associate Director, National Bureau of Standards (right). Dr McPherson presented the story of Project Tinkertoy, the NBS-developed method of producing electronic components automatically, at a special session of the National Standardization Conference, Wednesday afternoon, October 21.

• Literature on standards was popular. Here, on their way to the Company Member Conference, Eugene Metzler, Bendix Aviation; George Paine, General Precision Laboratory; Henry C. Littlejohn, General Radio Company, and A. Mascia, Bendix Aviation, look over the available material.

THE PURCHASING AGENT LOOKS AT STANDARDS

Panel sponsored by the Committee on Standardization, National Association of Purchasing Agents Excerpts from papers are given below.

G. N. Hackett



V. deP Goubeau

D. H. Lyons

Vincent de P. Goubeau •

Vice-president and Director of Materials, RCA Victor Division, Radio Corporation of America; Vice-chairman, Standardization Committee, National Association of Purchasing Agents (Moderator).

Since the formation of the NAPA Committee on Standardization, the most frequent question presented to us at the Annual NAPA Convention and at standardization discussions is "What can I as a purchasing agent do about standardization in my company? Our engineers have the responsibility for specifications. Should I duplicate their work? Should I start a standardization activity in my department? If not, how do I go about the job?"

Purchasing men have been contributing to standardization for a long time, but it has only been since our Committee on Standardization has been activated that we have become vocal on the subject. Our new approach has been helpful. It has stimulated our thinking and has brought home to our members possibilities for improved purchasing through a more energetic endeavor in the broader fields of procurement.

The efficiency of an industrial organization in my judgment can be gaged by its progress in standardization of all kinds, including the use of American Standards, as well as the adoption of company standards. The purchasing department must contribute its share in the over-all management of the company; in this respect that department must cooperate with the engineering and other functions of its organization. Standardization is the common ground for this close coordination. The NAPA Committee on Standardization is energetically endeavoring to assist the purchasing executive in this effort.

G. N. Hackett •

Director of Purchases, Thompson Products, Cleveland, Ohio.

If items the purchasing agent must procure can be limited to those that are recognized as standard in the industry from which he buys, he finds at his disposal manufacturers' and distributors' stocks of the things he needs. Usually costs are lower. It is easier to maintain minimum inventories, and inventory unbalances can be corrected quickly.

He still has a big job, since he must seek out the source of supply for goods that meet his objective of maximum value. Any item produced to recognized industry standards will do the job for which it is intended, but some will do it better than others.

Few Industrial Purchasing Agents require only standard items; it is necessary, therefore, to have some company standards. The Purchasing Agent can contribute objectively to the development of these standards. He probably has a wider knowledge than anyone else in his organization of the supplier's ability to meet economically the requirements of his engineering and manufacturing departments. He can promote discussion of the problem between representatives of his own company and experts from his supplier's organization.

The Purchasing Agent must constantly strive for good standards. He will usually be informed if materials must be changed to meet more rigid requirements but often relaxation in requirements may go unreported. In our own company on one specific item, changes in our method of manufacture voided a need for annealed stock. This was revealed in a specification review made by one of

our buyers. We had paid 1½ cents per pound for several hundred thousand pounds. Except for the buyer's review, we would still be doing it.

Inventory control is an important phase of business management because a large part of available working capital is always tied up in raw material, operating supplies, work in process, and finished goods.

We believe that we can determine the amount of money that we must invest in inventories, using the methods that we have devised for setting inventory standards.

In this program we establish standards for raw material, supplies, work in process, and finished goods.

By determining the amount of in-process material required at various rates of production, we develop the ratio that should exist between the number of parts completed each month and the number of parts required in-process.

Applying this ratio to our scheduled rate of production, we determine the number of pieces that should be in process. This is our in-process standard.

We follow a similar procedure in setting raw material standards. However, more factors must be evaluated by judgment and experience. These include (1) material availability; (2) customer requirements; (3) our manufacturing practices and requirements. Inventory standards are set for each of the manufacturing divisions and the standards reflect their specific needs.

(Here Mr Hackett explained how these factors are handled in developing raw material standards.)

D. H. Lyons •

Purchasing Agent, Johns-Manville Corporation, New York

The purchasing agent's responsibility has been defined as buying materials of the *right* quality — in the *right* quantity — at the *right* time — at the *right* price and from the *right* source. The problem of defining what is right requires consideration of many factors and in the area of standardization we have a wide field to cover.

In Johns-Manville a considerable amount of cost reduction work has been directed toward the improvement of standards. Whenever we think the job is done we come up with questions like these:

Can we standardize on the type, quality, and amount of treatment that should be put into a kraft paper to make it flame resistant? What is the standard for flame resistance anyway?

There is the question of standardizing work gloves among 22 plants. It sounds easy — But!

Then we have a problem of standardizing the quality of gummed tape that should be used for a particular operation in several plants.

That money can be saved through standards is attested to by the booklet, *Dollar Savings Through Standards.*

To satisfy some of my industrial engineering friends who strive for cost reductions, I promised to get in a word of caution about over-standardization. Someone said, "Standards are things written yesterday to cover materials developed ten years ago."

We in J-M try to overcome this problem by a rule which says every purchase specification must be reviewed at least once a year. We try to avoid being caught with obsolete standards.

Our purchasing department "request for quotation" form which we send out to thousands of suppliers every year contains a note reading:

> "Your suggestions are also invited as to any possible changes in specifications, substitutions, or other ideas that would result in lower cost to us."

Recently we have asked this question concerning packaging materials.

"Is it reasonable to assume that any standard we have been using for over five years can now be improved upon?"

In other words, we are trying to avoid the clash of old habits and new responsibilities.

Standards give the buyer freedom to select sources of supply based on service, quality, and price.

Standards give the buyer a safeguard of more than one source of supply and there is a common ground on which we can do business.

Standards eliminate costly mistakes and help the purchasing department to increase its contribution to the net profit of the company.

In discussion period, Don C. Brand, Monsanto Chemical Company, asked advice on use of specifications. Reply — specify what you want to do, not what you do it with.

What Kind of Standardization Information is Available to the Purchasing Agent

T. E. Veltfort •

Manager, Copper and Brass Research Association; Chairman, Conference of Executives of Organization Members of the ASA

This matter of standards and where to get them is a complicated one. The situation is probably more complex in the United States than in any other country in the world; principally because ASA as the national clearinghouse for standards is somewhat of a Johnny-come-lately. Literally hundreds of organizations were engaged in standardization work in 1918 when the ASA was founded. The ASA was organized to untangle the resulting duplications, conflicts, and overlapping of standardization, and to prevent future confusion. Much progress has been made in the developing of an orderly set of national standards through ASA's clearinghouse facilities, but we still have a long way to go.

Some of your companies' procurement programs probably involve items you have to buy from overseas sources. Obviously, if you can purchase on the basis of standard rather than special items, you have a price advantage. But the catch is often in knowing whether there is a national standard in existence for the item concerned. Probably few of you know that the library at ASA headquarters has on file about 2,000 British standards, 4,000 French standards, 8,000 German standards as well as the standards of 36 other foreign countries. So before you get involved in anything that calls for an overseas purchase, check the ASA's library and see what is available. I think you also ought to be alert to foreign standards in connection with the sale of your company's products abroad, if you have foreign markets. If you are going to be one of the experts on standards for your company, you will also be in a position to help your sales people from your own experience in gauging the attitude of your opposite number across the sea.

On the national level, ASA serves as a clearinghouse for standards both in their development and in providing information about them. Check with ASA to see if there are American Standards that apply to your purchased item. I am not talking about "ASA's standards"—there is no such thing. The standards born out of the ASA's procedure are American Standards and all groups affected by them have had a chance to help create them. ASA is in competition with no one. ASA does not make standards; it makes them possible.

There are other important organizations on the national scene whose standards represent a cross-section of opinion and agreement. Among these are the technical societies such as the American Society for Testing Materials, Society of Automotive Engineers, American Society of Mechanical Engineers, American Institute of Electrical Engineers and the American Society of Civil Engineers.

The trade associations and technical societies for particular industries comprise another source for standards information. A recent survey of 509 representative trade associations made by the U. S. Chamber of Commerce revealed that 293 or 58 percent are undertaking some activities relating to standardization, ranging from the direct establishment of standards to cooperation with other groups, private or governmental in development of standards. Many of these standards may be manufacturers' standards or users' standards. National Electrical Manufacturers Association, American Petroleum Institute, American Gas Association, Diesel Engine Manufacturers Association, Compressed Gas Association, American Iron and Steel Institute, and Edison Electric Institute are among hundreds of such trade and technical groups establishing standards. I refer you to ASA, however, for specific information on what has been or is being done in a particular field both within and outside ASA's standardization program.

The whole field of company standards is becoming increasingly important as exemplified by the CMC which meets periodically to exchange information and ideas on standardization problems. Most companies are proud of their standardization programs and I think I can safely say that a fruitful interchange of experience is available for the asking. Most of these companies keep in close touch with ASA. If you need some first-hand advice, ASA can lead you to someone who will be more than willing to help you.

In government standardization there is a wide range, from federal specifications all the way down to local codes, laws, and ordinances. Although you are not buying from the government, you may be buying materials or components going into items your company is making under government contract, according to government specifications. Furthermore, in your civilian purchasing, if you find a lack of industrial specifications, you can always use a government specification as a guide. This is a complex field and the monthly features on government standards in STANDARDIZATION are worth salting away in your permanent file.

We value highly the contribution of the purchasing agents to our common effort in securing more and better standards and we will be glad to cooperate with them at all times in this effort.

T. E. Veltfort, Manager, Copper and Brass Research Association.

Quality Control

Sponsored by the Metropolitan Section of the American Society for Quality Control

Using charts and gadgets, the team of Paul C. Clifford and Ellis R. Ott demonstrated at the morning session how the statistical method of quality control works. Professor Clifford is at New Jersey State Teachers College, Montclair, N. J.; Dr Ott is a professor of mathematics and applied statistics at Rutgers University, New Brunswick, N. J. Both are past-chairmen of the Metropolitan Chapter and spend a good deal of their time as consultants on quality control. They were members of a United Nations Mission to India and demonstrated the practical application of statistical control of quality there.

Purpose of a quality control program, they pointed out, is (1) improved quality; (2) reduction of rejects and rework; (3) reduction of cost; (4) a better understanding of the factors that affect quality through modern design of experiments; and (5) improved customer relations on the basis of quality.

For a program to succeed, there must be a clear idea of what it is to achieve; concentration on that objective; high degree of management confidence in the people running the program; and a high level of shop participation and interest.

One function of quality control is to provide a guide for the process. On the control charts, guide lines indicate the spot beyond which there is excessive variation. Acceptance sampling plans, inspection data, control charts, statistical analysis, designed experiments must all dovetail if management is to achieve the results that are possible by the use of these techniques.

• Many factors in which variations occur during production affect the quality of a product. Here, after the meeting, Dr Ott explains to a group the simulated paperboard machine with which Professor Clifford demonstrated this point. Using 10 rows of nails to represent 10 factors in paperboard manufacturing, he ran samples through this gadget, coming up with a demonstration of the "frequency distribution" of product variations. By adjusting the control, he showed how the results could be changed. In urging the importance of quality control during production, he pointed out that the time element in the production-test-adjust cycle must be short if the production people are to receive information on variations in time to correct them. Therefore, he maintained, it is not satisfactory to inspect a large amount of product. Because of the difficulty of 100 percent inspection, small samplings charted statistically, give more satisfactory results. He demonstrated how a series of small samples can indicate trends or changes in a process.

• If a tabulation is made of sample after sample of 100 parts each from a process known to be running 10 percent defective, the general pattern is like this, Professor Clifford points out. One sampling may show three bad items; another may show 18 bad items but in general the number of discrepancies will fall between these two outside limits, rising to a peak frequency at 10 percent. To the right, on the table, is the frequency distribution chart which Professor Clifford and Dr Ott adjusted to show the effect of different types of sampling and control of variations. A major use of quality data is for control correction, Professor Clifford declared.

● Dr Ott points to a chart with which the depth of cut produced by a lathe was checked. This information made it possible to adjust the machine to keep the cut within required tolerances, he explained. Chart shows measurement of depth of cut on five parts at intervals of 15 minutes during production. The shift upward about the center of the chart indicates that some important change has affected the cutting process. The foreman insisted there had been no change. A study of this machine was finally agreed to. As a result, he learned that a chuck had slipped, causing the upward shift. This study was made after production and management had decided that the machine was incapable of holding the close tolerances needed on this operation. Their experience with the chuck made them decide to study and guide the process by means of control charts. By making adjustments when the charts indicated the need for changes, they found the process could hold the necessary tolerances. When a new special machine, ordered for this purpose, arrived, it was found that the old "worn-out" machine could do a better job than the new one.

Plastic box on table at right contained beads. Colored beads represented bad items, white beads good items. By shaking box and picking handful of beads at random, Professor Clifford and Dr Ott demonstrated variability of sampling results.

Examples of Successful Statistical Quality Control Operations

Following are excerpts from papers presented at Conference.

August B. Mundel ●

Director of Quality Control, Sonotone Corporation, Elmsford, N. Y.

Four points make it easier to produce a quality product and operate a quality control and inspection division. These are: (1) Define your objectives; (2) Create an enthusiasm to conform to specifications; (3) Develop integrity and trust among members of the organization even though they may be in different sections and may report to different supervisors; (4) issue reports of progress and conformance.

The important purpose of quality control is not sorting the good from the bad product, but it is feeding information back through the manufacturing operation to prevent the production of defenctive material. We have control charts set up. When the control chart goes out of control, there is only one indicated thing to do. That is to re-set the machine, re-sharpen the tools, put good material in, find out what's wrong, and take the necessary corrective action to get the product into control at the proper level.

Quality control is a system for preventing the manufacture of rejects, and preventing the plant from shipping defective materials. It always costs more to ship defective material and get it back than to find it in the plant and to correct it there.

In our plant the quality superintendent is responsible in his line function to the plant manager, who is respon-

sible for production and schedule. Functionally, this quality superintendent is responsible to the head of the quality control division, and the quality control division and the manufacturing division report individually to the vice-president in charge of all technical operations.

Our plant managers keep asking for more help from the quality control group rather than less help. We help them to set up factory experiments on a statistical basis in order to get true answers.

Top management is interested in quality control because it is economical. When we sell a hearing aid to a customer, we give him an unconditional guarantee for a period of one year. If anything develops in his hearing aid that is unsatisfactory to him, he can bring it back to any of our 400 offices and get a free replacement immediately. Through quality control we have reduced our free exchanges to less than one-third of what they were several years ago.

Due to quality control, and elimination of rework among other things, we have been able to cut our factory labor costs, year after year, despite a continual round after round of wage increases.

Francis C. Dupre •

Superintendent of Assembly Division, Kollsman Instrument Corporation, Elmhurst, N. Y.

In that division of our company which I supervise, I am charged with the responsibility of seeing to it that all operations are conducted as economically as is possible. Since its first trial, in my division, I have never had the slightest reason to feel that statistical quality control could not be a paying proposition.

The majority of instruments we currently manufacture have one thing in common, in that they contain one or more pressure-sensitive elements which we call diaphragms.

One of the critical characteristics of a diaphragm is its pressure/deflection curve, which we must measure to within 0.0001 in. — in many cases to 0.00001 in. To accomplish this measurement we use electronic micrometers and other specialized and costly equipment.

Due to the tightening of specifications it was thought that these diaphragms might have to be subjected to detailing (100 percent inspection). This would have meant the expenditure of considerable sums of money.

After considering the expenditures involved, I thought that here might be the ideal opportunity to put statistical methods to the test.

It was decided to run parallel tests on two groups of diaphragms to permit us to compare the efficiency of detailing with that of statistical sampling.

Because of equipment limitations, most of the diaphragms were to be judged on the basis of sampling, while the smaller group would be detailed.

Over a period of time we accepted 25,000 diaphragms on the basis of sampling inspection, 3.2 percent of which were subsequently found to be sub-standard in that they took excessive time to calibrate.

During this same period 9000 diaphragms were accepted after detailing, 2.65 percent subsequently being declared sub-standard because of excessive calibration time.

It is evident that had we sampled the group which we detailed we would, most likely, have accepted 50 more sub-standard diaphragms, i.e., 3.2 percent instead of 2.65 percent.

To accomplish the detailing, which netted us the 9000 supposedly acceptable diaphragms, cost $4500.00. If we had sampled, the cost of sampling plus the cost of the lost time due to sub-standard diaphragms would have been $1100.00.

We decided that we wanted no part of detailing on this component.

Shortly after this experience with sampling we had a request for a rather radical change in the specifications covering a relatively important product. This change had to do with a desired distribution of errors over a group of test points, rather than the specific reduction of any one or more errors at given test points.

Using statistical techniques to analyze processes and determine capabilities it was evident that acceptance of this change would result in higher costs due to increase in the internal rejection rate. This same data suggested that we could offer a compromise, which would be quite close to the requested change, provide a better unit for the customer's purposes, and result in a lower internal rejection rate.

We are not, as yet, a large-volume outfit. You might classify us as a semi-job shop, in that orders go through our groups in quantities varying from 20-25 pieces to 2,000 pieces. Statistical techniques can be made to assist even on small runs, provided you choose the right technique and apply it with a little common sense.

Simon Collier, Past President, American Society for Quality Control, and Director of Quality Control, Johns Manville Corporation, New York, presided at the afternoon session on Quality Control. At this session, members of a discussion panel told how their companies had successfully applied statistical quality control methods.

Dr William E. Gaunt •

Director of Quality Control, E. R. Squibb & Sons, New Brunswick, N.J.

Powder filling of antibiotics is perhaps the most mechanical operation that we have. The vials are lined up; they pass under a filling machine, which drops a little plug of powder into the vial; it passes on to be capped, sealed, labeled, and packaged out.

The system before we applied statistical techniques was to take a number of vials at intervals of about 20 minutes each, weigh them, and record the data.

Nothing was done with the data. The penalty for underfilling was rejection of the lot. There was no penalty for overfilling other than fewer vials out of a given batch of antibiotic powder.

When we started the simple job of plotting the data on a control chart, we found that operators were making unnecessary machine adjustments. They were adjusting because of the fear that they might underfill and therefore have the lot rejected. They were adjusting too frequently when perhaps the low fill was merely a chance variation in the process itself.

Using the control chart technique, we got 3 percent more vials out of a given weight of antibiotic powder than we had had before. We cut machine adjustments down to 20 percent of the original value. We increased the number of vials produced per unit time by about 13 percent, and we didn't add a person in the operation.

We also ended up with a more uniform fill from vial to vial than we had previously had, so that at no additional expense we got more production, cheaper.

F. Bruce May •

Acting Director of Quality Control, Johnson and Johnson, New Brunswick, N.J.

In some new containers we were using was a special trick string that you pull in opening. They just wouldn't open when the containers got out into the customers' hands.

When you need a surgical dressing you need it badly, and if the package doesn't open, it fails to meet the purpose for which it is intended.

We went back to the company that produced this material. We suggested to them that they sample in their plant. Without statistical sampling, they were not positive of what they were producing. They would say, "Fine, this lot is perfect. We know it is, because we checked it." When it would come to us, we would sample it statistically, and reject it because it did not meet the standards.

After approximately a month of this, the company was ready to give up.

To the rescue came Quality Control. We made a visit to their plant. We found they didn't have any standards on the raw materials they were purchasing and that the producer of the paper was sending them practically anything coming off their mill.

The first thing we did was to establish a standard that would allow them to work within a known tolerance. When this was established, we were able to show them they could consistently produce tubes that would open.

They have been supplying us with tubes with the trick opening ever since.

In another example, our purchasing department said, "We like this source of supply because they give us the material at the cost that we like."

We said, "We don't like this source of supply because they just don't give us the quality we need."

We had a meeting of top executives and indicated to them that we would like them to try Quality Control.

They were willing to attempt that and we helped them find a person that would do the job in their plant. At the end of the year, they were sold on Quality Control.

The quality of product was increased from something around 15 to 18 percent defective down to around 4 percent defective. This company now enjoys some of the business that it had not been able to get because it was not a quality house in the past.

The panel at the afternoon session on Quality Control, left to right — August B. Mundel; Simon Collier; Francis C. Dupre; F. Bruce May; Dr William E. Gaunt.

Company Member Conference panel, morning session, left to right — W. B. Fleming; K. B. Clarke (chairman); J. M. Goldsmith; H. W. Robb.

The Company Member Conference

"If you don't have a standardization organization in your company, how do you go about organizing one?" This is the question the Company Member Conference is most often asked, ***K. B. Clarke,*** chairman, told a large audience at the CMC meeting October 20. There are probably as many answers to this question as there are different kinds of companies in our industrial picture, he commented.

Three CMC members engaged in standardization work discussed the factors that enter into organization of a standards department during the morning session of the all-day meeting.

H. W. Robb, General Electric Company, defined standardization as the organized solution of common problems, and standards as records of such solutions. A standards department should first call attention to the need for standardization and its advantages; second, it should assist in putting standardization into effect, he said. There is a close relationship between a standards department and all other functions of a company, and standardization needs the support of top management to be effective, he declared. He reviewed the history of the G-E Standards Department.

W. B. Fleming, manager of the Standards Division, Jeffrey Manufacturing Company, declared that a man from within the company who knows the company's procedures and its people can be trained to head a standards department more easily than an outsider who must learn the business. Mr Fleming recommended that a new standards department start an indexing system; that it work through committees; and that it analyze the end result it desires to achieve before proceeding to set up its program. Some distribution system is needed to keep standards books up-to-date and to see that books reach the individuals who need them, he said.

Regardless of the product, there is a great competitive market that can be met only by standardization, declared

J. M. Goldsmith, Chief Inspector of the Sheffield Steel Corporation. Production in volume must be standardized in order to keep down costs, he said. In Sheffield's Kansas City plant alone there are some 4,000 employees. This means extensive planning to establish a standardization program.

The company has grouped the standards pertaining to its products into several volumes for use by sales or production personnel. It has also incorporated a numbering system to be used on production orders to insure delivery to the correct departments. Mr Goldsmith showed slides to illustrate the specifications used.

The Sheffield Steel Corporation trains its supervisors in the use of specifications in order that they can make them understandable to a worker even on the lowest level. Supervisors are urged to pass along any suggestions that will assist in improving the standardization program.

NOTE: A number of the papers presented at the meeting of the Company Member Conference will be published in full in future issues of The Magazine of Standards. These include the discussions of company standards departments by H. W. Robb and W. B. Fleming, and that on the Eastman identification numbering system by P. J. Callan.

R. P. Hoelscher, chairman of Committee Y14, reported on work on drafting standards.

CMC panel, afternoon session, left to right — R. P. Hoelscher; K. B. Clarke; P. J. Callan; A. W. Meyer

At the afternoon session, ***P. J. Callan,*** Material Standards Department, Eastman Kodak Company, explained the Eastman identification numbering system for purchased materials. When a punch card system of stock control was put into effect, it became necessary to adopt a single new system in place of the variety of systems used before, he explained. A number of objectives were kept in mind. These included the principle that each number should be significant, groupings should be logical, provision should be made for expansion, only a minimum of changes should be needed, and room provided for absorption of new items. Numbers are 10-digit numbers composed of three groups of digits.

Dr R. P. Hoelscher, Head of the General Engineering and Drawing Department, University of Illinois, and chairman of Sectional Committee Y14 on Drawings and Drafting Practice, reported on the current status of this work. Seventeen subcommittees are working under this committee which operates under the sponsorship of the American Society of Engineering Education and the American Society of Mechanical Engineers. The committee was slowed in its work by withdrawal of representatives from the Armed Services. However, a number of sections of the Drafting Manual have already been completed and are ready for letter ballot of the full sectional committee.

One of the chief objectives of the Company Member Conference is to foster direct contact among individual companies, ***A. W. Meyer,*** Director of Patent and Engineering Investigations, Brown and Sharpe Manufacturing Company, declared. Speaking on the subject "How to Profit from Membership in the Company Member Conference," he said that an evaluation of savings due to standards is a difficult problem. CMC keeps individual members up to date on what is going on in other companies as well as on current standards and standardization work done through ASA procedures. It prepares the foundation for preparation of standards through surveys and reports, proposes new projects, recommends revisions, recommends adoption of existing standards, and can suggest American Standards to be used as a basis for international recommendations.

The basic procedures of CMC are simple, well established, flexible, and capable of meeting the ever-changing problems of industry, he declared.

W. B. Fleming, Jeffrey Manufacturing Company, (left) is the new chairman of the Company Member Conference; M. C. Olsen, National Cash Register Company, is CMC vice-chairman. New members elected to the Administrative Committee of CMC are Harvey C. Erdman, National Screw & Manufacturing Company; Kenneth W. Mahen, American Cyanamid Company; Marvin C. Olsen, National Cash Register Company; and J. Robert Walgren, Aluminum Company of America.

• **The Chemical Industry Advisory Board** met during the National Standardization Conference, heard reports of subcommittees, and voted to organize a new subcommittee on Industrial Requirements of Plastic Materials. Robert C. Thumser, American Society for Testing Materials, was elected chairman of this subcommittee. It will carry out a continuing study of the applications of plastic materials. J. G. Henderson, at head of table (left), is chairman of the CIAB. He represents the Manufacturing Chemists Association.

Conference on Standard Pallets

Asserting that standardization of pallets is "necessary to the economy of the United States," a conference of industry and government representatives, held during the National Standardization Conference, asked ASA to look into the question of a project for development of standards for pallets. A general conference to advise ASA on this question is scheduled for February 24.

Speaking for the National Security Industrial Association which was the conference leaders, Harold C. Christensen of Sylvania Electric Products, Inc, chairman, said, "We have two interests at this meeting — government's immediate problem and industry's long-time interest.

"In industry we are unable to use effectively the type of pallet presently used by the armed forces. We both must, however, find the easiest way of handling products all the way from packaging to the point of delivery.

"In the future, everything we do in industry and government must be coordinated."

The Armed Services reported a net saving of 479 man hours when 100 tons of palletized cargo was handled on 77 pallets in 203 hours in comparison with the same amount of loose cargo in 4,080 separate packages requiring 682 man hours. The Armed Services have standardized on two pallets — 40 x 48 inches for depot operations and 48 x 72 for stevedoring operations.

Mr Christensen, speaking for industry, explained that his own industry's handling costs would go up approximately 75 percent if it were to adopt the 40 x 48 inch size instead of their present 48 x 48. He called attention to the variation in internal dimensions of common carriers. The average box car is 110 inches wide, accommodating two 48 in. pallets abreast. Motor truck bodies, on the other hand, vary from 80 to 90 inches, thus at the most accomodating two 40-inch standard pallets.

Representatives of both industry and government acted as a panel to discuss the need for pallet standardization. They were: H. C. Christensen, Coordinating Engineer, Materials Handling, Sylvania Electric Products, Inc, *Chairman;* Vice Admiral G. F. Hussey, Jr, Managing Director, American Standards Association; Charles Fogarty, Standards Division, Office of Assistant Secretary of Defense for Supply and Logistics; Commodore J. K. Richards, Jr, Executive Director, National Security Industrial Association; C. J. Heinrich, Naval Supply Depot, Bayonne, N. J., Vincent J. Reade, representing the American Materials Handling Society.

Holding model pallets, H. C. Christensen, Sylvania Electric Products, and C. J. Heinrich, Naval Supply Depot, Bayonne, N. J., exchange notes after the conference.

S. H. Watson, RCA Victor Division, Radio Corporation of America, presiding at the Conference on Catalogs.

Conference Asks for Work on Catalogs

A general conference, held during the National Standardization Conference, recommended that work on standardization of catalogs be handled by a sectional committee organized under ASA procedure. The standardization of catalogs, such as those used by purchasing agents and designers, for example, had been studied by the Company Member Conference. Upon its request, the Standards Council had decided that an ASA project should be initiated.

The general conference unanimously recommended that the National Association of Purchasing Agents be invited to assume sponsorship for this project. It also recommended a tentative scope to be considered by the sectional committee when it is organized.

The discussion showed that the interested groups not only had in mind the format of catalogs but also the arrangement of their contents. Reference was made to different types of catalogs, including those being used as manuals and carried in the pocket. It was agreed, with a view to these different uses that there might be reason to adopt more than one standard size.

ASA staff manned the registration desk.

HOW A FEDERAL SPECIFICATION TOUCHED OFF CHAIN REACTION

by S. P. KAIDANOVSKY

Federal Specification QQ-S-741 for Steel, Structural (Including Welding) and Rivet; (for) Bridges and Buildings was issued in 1942 and amended three times. The last amendment was in 1946.

This specification classifies structural steel in two types, Type I for riveted, and Type II for Welded Structures; in two grades: Grade A, for bridges and Grade B for buildings; and in two Classes: Class 1, Non-copper steel and Class 2, Copper bearing steel.

The issuance of Federal specifications, the use of which is mandatory by all Federal Government agencies, is entrusted by law to the General Services Administration. The preparation of Federal specifications is the responsibility of the Standards Division, Federal Supply Service (FSS), General Services Administration (GSA).

The revision and simplification of the Federal specification QQ-S-741 was initiated under the following circumstances:

The Veterans Administration, early in the Korean war, informed the Office of Defense Mobilization (ODM) that it pays "premium prices" for its structural steel whenever welded constructions are involved and the structural steel is specified in accordance with the Federal Specification QQ-S-741. The Veterans Administration considered this matter of importance in the conservation of materials program because welded constructions require less steel and the practice of field assembling of structural steel constructions by welding is superseding riveting at a rapidly increased rate.

The ODM fully agreed with the Veterans Administration on the importance of finding means for conserving steel as well as of reducing construction costs, especially in view of the military and industrial defense mobilization then started.

On April 17 and June 11, 1952, meetings were called by ODM in cooperation with the Defense Production Administration (DPA), to discuss the matter with representatives of Government agencies, industry, and technical societies. The following organizations were represented at these meetings: The American Society for Testing Materials, American Iron and Steel Institute, American Welding Society, American Institute of Steel Construction and several Government agencies directly involved in construction work.

The subject was given thorough examination from all points of view. While there were expressed divergent views as to the use of field welding in the building industry, it was nevertheless agreed that field welding is and will be of importance in building defense installations as for example in erecting aircraft hangars or in reconstruction work in emergency situations, such as after air attacks.

The participants in the discussion agreed that weldable steel may be used for riveting without any discrimination. Finally, all participants agreed that the structural steel as specified in the ASTM A-7 Tentative Specification for Steel for Bridges and Buildings and those in the Federal Specification QQ-S-741 "are identical or at least sufficiently so to permit using them interchangeably."

This brought immediately to the forefront the question of the justification for "premium prices" on weldable structural steels of Type II, Federal Specification QQ-S-741, which premiums averaged in 1952 from $13.00 to $20.00 per ton. It was disclosed at the meetings that the chemical characteristics of structural steel in general production runs in steel mills are of a kind suitable for field welding and if the chemical requirements of the steel would be included in the ASTM A-7 Specification, as is the case in the Federal Specification QQ-S-741, the "premium prices" would be considerably reduced and would cover only the specific inspection and packing costs usually involved in Government contracts.

At the end of the meeting of June 11, 1952, it was decided to request the ASTM to prepare at the earliest possible date requirements covering a weldable grade of steel for general building construction for inclusion in the ASTM A-7 Specification, and ask the ASTM to proceed at once on this assignment.

In spite of the fact that the representatives of the Subcommittee 2, Structural Steel, of the Committee A-1: Steel, of the ASTM, attended to the organization of these meetings and were present at both meetings, the board of the Subcommittee 2 was reluctant to impose on its membership a decision for the modification of the ASTM A-7 Specification in line with these recommendations. Instead it has suggested that the interested Government agencies should modify and change their requirements so as to effect the sought for reduction in the cost of the structural steel these specify.

At this juncture the American Welding Society suggested having a meeting with the representatives of the ODM and interested Government agencies. The subject for discussion was the Society's plan for a revision

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Mr Kaidanovsky, Consulting Engineer, is former chairman, Federal Interdepartmental Standards Council, Technical Consultant of the Federal Specifications Board and editor STANDARDS WORLD.

of the Federal Specification QQ-S-741 by inclusion in it of all test and inspection requirements from ASTM A-7 Specification, all dimensional requirements of ASTM A-6 Tentative Specification for General Requirements for Delivery of Rolled Steel Plates, Shapes, Sheet Piling, and Bars for Structural Use, and a set of requirements for weldable steel which the American Welding Society in collaboration with a leading steel producer and a Government agency satisfactorily worked out for one construction project.

This recommendation when approved by the Federal Government may be then adopted as an American Welding Society (AWS) standard and submitted to the Subcommittee 2, Committee A-1 for its consideration and approval.

A meeting was called by the ODM on October 9, 1952, and the consensus of all participants was that an incorporation of the above AWS suggestions in any purchase specification would result in a good specification, and if the AWS would recommend it, and if steel companies would acquiese, the Government would find it advantageous to revise the existing Federal Specification QQ-S-741 accordingly.

On the basis of these conclusions the ODM called upon GSA for a revision of the Federal Specification QQ-S-741. The Standards Division, FSS, GSA, which conducted an independent study of the problem arrived at practically identical conclusions.

Upon receipt of a request from the ODM for the revision of Federal Specification QQ-S-741, the Standards Division took immediate steps to organize a conference of representatives from all interested Government agencies, and research organizations involved in construction work, and those that use, inspect or conduct research work on weldments, in order to arrive at a directive as to the manner in which the revision of Federal Specification QQ-S-741 should be accomplished.

The conference was held on January 23, 1953, at which time GSA outlined the problem, its background and importance. Since the U. S. Congress had expressed its wish that the executive agencies of the Government should use trade specifications whenever they properly cover Governments requirements, it was suggested by GSA that Federal Specification QQ-S-741 be revised by incorporating in it by reference all pertinent requirements from ASTM A-6 and A-7 Specifications supplementing them, in regard to weldable structural steel, with the requirements which were worked out by the American Welding Society in cooperation with a Government agency and one of the leading steel producers.

After prolonged discussions the conference adopted GSA's suggestions and authorized revision of Federal Specification QQ-S-741 on suggested lines for circulation for comments of all Government agencies, trade organizations, individual steel producers and technical and scientific societies. The authorized revised specification was issued as an Interim Federal Specification QQ-S-00741 (GSA-FSS) dated January 29, 1953.

Soon after the issuance of this Interim Federal Specification the American Welding Society's Bridge Code Committee prepared and adopted on May 27, 1953, a specification for steel for welded bridges which incorporated practically verbatim the requirements for weldable steel of the Interim Federal Specification QQ-S-00741.

The American Society for Testing Materials at its annual meeting June 29, through July 3, 1953, in Atlantic City, decided to issue a separate specification for weldable structural steel instead of modifying the ASTM A-7 specification. A proposed specification for a structural welding grade of steel is under preparation. This is based upon the requirements of a welding grade of structural steel adopted by the American Welding Society's Bridge Code Committee.

The Interim Federal Specification QQ-S-00741 originally issued on January 29, 1953, was revised on July 10, 1953, and submitted for comments to Government agencies, industry and individual producers and fabricators. The revised specification is closer in line with the ASTM A-6 and A-7 specification than the first draft. Physical and inspection requirements from ASTM A-7 and all dimensional requirements from ASTM A-6 are now incorporated in the new draft, instead of referencing ASTM specifications as was done in the first draft. The following note is included in the new draft of the specification.

> "The specified Type I and Type II Steels are basically identical with the steels covered by the ASTM A-7 Specification with the principal distinction that in Type II steel the chemical requirements are restricted and the physical requirements are modified."

Also the title of the specification has been broadened to "Interim Federal Specification QQ-S-00741 (GSA-FSS) for Steel, Structural."

Comments have been received from industry and Government agencies on the July 10, 1953 Interim Federal Specification. These comments will be used in preparing the final draft. There is an *ad hoc* committee of representatives of the Department of Defense, General Services Administration, and industry which is preparing a draft of a specification for steel, carbon, structural plates, shapes and bars which will be considered in the revision of Interim Federal Specification QQ-S-741 (GSA-FSS).

Several years ago the Swiss national standards body asked ASA the simple question: "When is a single-point cutting tool considered as 'right hand' and when is it 'left hand,' in the United States?" In the absence of an American Standard, ASA made a canvass. Surprisingly, replies were divided about 50-50, depending on the branch of industry and on geographical location. What some called a right-hand tool was a left-hand tool to others. Now, an American Standard says: "A right-cut single-point tool is one which when viewed from the point end of the tool, with the face up, has the cutting edge on the right side." A similar definition places the cutting edge of a left-cut tool on the left side. These definitions and others, such as "clearance" and "relief," were debated in an ASA committee before they were settled.—John Gaillard.

This example illustrates how a revision of a Federal Specification touched off a chain reaction, which affected an ASTM Specification and an American Welding Society Specification. It indicates the inter-dependence of Government and industry, the necessity for closer cooperation and consultation on mutual technical problems between the two, and adoption of requirements suitable to both, resulting in savings of time and money to Government and industry.

More American Standards Referenced in Federal Specifications

Federal Specification GG-C-116, Camera, Still-Picture, Press Type, 4x5 inch has recently been issued. This specification covers the requirements for two types of folding still-picture press cameras for making nominal 4x5 inch negatives on sheet film or film pack: Type I, With both focal plane and between-the-lens shutters, and Type II, With between-the-lens shutters only.

The following seven American Standards are referenced in this specification:

Z38.1.28-1946—American Standard Dimensions for Professional Portrait and Commercial Sheet Film (Inch Sizes).

PH3.6-1952—American Standard Tripod Connections for American Cameras ¼-inch-20 Thread.

Z38.4.3-1947—American Standard for Distance Scales Marked in Feet for Focusing Camera Lenses.

Z38.4.6-1950—American Standard for Shutter Cable Release Tip and Socket with Straight (American) Thread.

Z38.4.7-1950—American Standard Lens Aperture Markings.

Z38.4.11-1944—American Standard Specification for Threads for Attaching Mounted Lenses to Photographic Equipment.

Z38.4.26-1951—American Standard for Flash Synchronizing Equipment, Bi-post-Type, Connecting Cord Ends and Pins.

Copies of Federal Specification GG-C-116 can be purchased from the General Services Administration Bustion are the Office of Technical Serventh and D Streets, S.W. Washington 25, D. C. Price 10 cents.

STANDARDS OUTLOOK

by Leo B. Moore

An Introduction —

The idea for these columns was first suggested to me about five years ago by several standards engineers. At that time I was in the midst of a schedule of plant visits for the express purpose of getting information on standardization practices. Comparisons on a general basis were inevitable. Certain unexpected differences in approach, method, and practice became evident; while, at the same time, certain underlying and basic principles began to take shape.

In 1950 I started my course at MIT, after visiting about 100 companies and attending Dr John Gaillard's seminar.

I found that teaching involved more than reporting on all of the material I had collected. I found that in presenting my views and ideas I had questions on standardization that needed answers. Most of these reflected thinking in terms of management and administration, although my students, themselves, have a way of asking questions that get at the heart of a problem.

Together we have considered opportunities that exist in standardization and possibilities of improvement in performance of standardization.

Although I cannot be considered an expert in standardization, I am an interested, and in some ways, an impartial observer. In these columns I look forward to the opportunity to present Ideas generated from observation of industry at work, and in light of questions that are raised by students interested in future opportunities in standardization.

In Mr Moore's first full column in the February issue, he will consider the "basic good" of standardization. Mr Moore is Assistant Professor of Industrial Management at the Massachusetts Institute of Technology where he teaches a full-term course in industrial standardization.

New Government Body

One of the functions of the new Business and Defense Services Administration, as defined by the Secretary of Commerce, October 1, is to:

"Act as a clearing house for Government technological information of interest to business and assist industry in the voluntary standardization of products."

The new agency is a primary organization unit in the Department of Commerce. It continues the defense and mobilization functions of the former National Production Authority. Offices transferred to the Administration are the office of Technical Services, the Office of Distribution, the Field Service, staff functions of the Industry Evaluation Board, and the Office of Industry and Commerce. This latter includes the Trade Association, Commodities Standards, and Area Development Divisions.

The Fifth National Conference on Standards –

Plans are already under way to make the Fifth National Conference on Standards the best ever. Put the date and place on your calendar — November 15, 16, 17, 1954; Hotel Roosevelt, New York.

Standards from Other Countries

Members of the American Standards Association may borrow from the ASA Library copies of any of the following standards recently received from other countries. Orders may also be sent to the country of origin through the ASA office. Asterisks indicate standards of non-English-speaking countries published in English.

662.6/.9 FUEL INDUSTRY. INDUSTRIAL HEATING

Germany (DNA)

Diesel fuel. Determination of cetane number — DIN 51773

U.S.S.R.

Seven standards for test methods of different grades of coal — GOST 2160, -6379/83, -6389

664 PREPARATION AND PRESERVATION OF SOLID FOODSTUFFS

Mexico (DGN)

Canned shrimps — DGN F-19
Tomato juice — DGN F-32
Canned tomato puree — DGN F-33
Canned peaches — DGN F-34
Canned pears — DGN F-35

Poland (PKN)

14 standards for different foodstuffs — PN Section A Series 74000
6 standards for preserved vegetables — PN A-74001, -74007,-75017,-75019,-77704,-77708

South Africa (SABS)

Standard specification for canned whole grain corn — SABS 305-1951

665 OILS. FATS. WAXES

Germany (DNA)

Test for knock characteristics of motor fuel in CFR motors — DIN 51756

Mexico (DGN)

Corn oil — DGN F-30

Poland (PKN)

11 standards for different tests of petroleum products — PN C-04011, -04014/15,-04045,-04065,-04067/68, -04084,-04101,-04105,-04130

Sweden (SIS)

Aniline point test — SIS 150218
Determination of tetraethylic lead contents in highly volatile engine fuels — SIS 150219

U.S.S.R.

Determination of water-soluble acids and alkalis in petroleum products — GOST 6307
3 standards for different tests of motor fuel — GOST 6321, 6356, 6370

666 GLASS AND CERAMIC INDUSTRY. ARTIFICIAL STONE

Austria (ÖNA)

Milk bottles — ÖNORM A 5001

Germany (DNA)

2 types of glass containers — DIN 6042,-6075
3 standards for different bottles for beer and soft drinks — DIN 6046/47, -6082
Cola bottles — DIN 6076

Mexico (DGN)

Asbestos cement tiles — DGN C-27
Vitrified clay tiles — DGN C-28
Plate glass for mirrors — DGN P-4

Poland (PKN)

6 standards for different grades of portland cement — PN B-04301/02, -30000,-30002/03,-30005
Plain machine-drawn glass sheets — PN B-13052
Bottles, up to 1l capacity — PN G-79000
Blast furnace slag, analysis — PN H-04140
Glass and chinaware — PN A-12509, -13000,-13050
Ceramic hollow bricks, etc — PN B-12040, -12600,-12610,-12615

Spain (IRATRA)

Chemical analysis of gypsum and scagliola — UNE 7065
Efflorescence test for bricks — UNE 7063
Determination of flexural strength of burned clay bricks — UNE 7060
Determination of water absorption of burned clay bricks — UNE 7061
Determination of water resistance of burned clay bricks — UNE 7062
Hydraulic concrete, common — UNE 41002
11 standards for different tests of safety glass — UNE 43009, -43017/26
Testing of stoneware for resistance to chemicals — UNE 7058
Resistance test of burned clay bricks — UNE 7059

South Africa (SABS)

Standard specification for glass Winchester bottles — SABS 409-1952

Sweden (SIS)

Determination of glass resistance to water — SIS-71 10 32

U.S.S.R.

Gypsum plaster — GOST 125
Clay roofing tiles — GOST 1808

United Kingdom (BSI)

Ampoules — BS 795:1953
Glass container finishes — BS 1918:1953
Methods of specifying ready-mixed concrete — BS 1926:1953
Glass for glazing: classification and terminology — BS 952:1953

667.6/.8 PAINTS, LACQUERS, VARNISH

France (AFNOR)

Determination of the oil absorption by pigments — NF T 30-022
Determination of whiting power of white pigments — NF T 30-023

India (ISI)

Coal tar black paint — I.S. 290
Liquid driers — I.S. 385/6
Titanium dioxide for paints — I.S. 411
Paint remover, solvent type, non-flammable — I.S. 430
Paint remover, solvent type, flammable — I.S. 431

Japan (JISC)

Different paints, lacquers, driers (11 standards) — JIS K 5530/9, -5541

Netherlands (HCNN)

Pigments, sampling — V 1944

South Africa (SABS)

Standard specification for talc extender for paints — SABS 410-1952
Standard specification for red iron oxide pigment for paints — SABS 293-1953
Standard specification for silver and plated ware — SABS 408-1952

Switzerland (SNV)

Two shades of gray finishes for industrial machines and apparatus — VSM 37022/23

United Kingdom (BSI)

Oil pastes for paints — BS 390:1953
Glossary of paint terms — BS 2015:1953
White oil pastes for paints — BS 2029:1953

669 METALLURGY

Austria (ÖNA)

Testing of butt-welds — ÖNORM M 3050
Color code for designating different grades of unalloyed cast steel — ÖNORM M 3105
Rivet steel — ÖNORM M 3113
Steel sheets under 3 mm thick — ÖNORM M 3123

Canada (CSA)

Specifications for stainless steel — CSA G110 series

Germany (DNA)

Cold drawn equal angles — DIN 59370
Material for permanent magnets — DIN 17410
Copper and copper alloys — DIN 11708, -11718

India (ISI)

Methods of chemical analysis of pig iron, cast iron and plain carbon and low-alloy steels — I.S. 228
Methods of chemical analysis of slab zinc and zinc base alloys — I.S. 406
Brass tubes for general purposes — I.S. 407
Rolled brass plates, sheets, strips and foils — I.S. 410

Japan (JISC)

Testing and inspection of pig iron — JIS G 0301*
Testing and inspection of steel — JIS G 0303*
Testing and inspection of steel pipes — JIS G 0304*
Steel bars and strips for springs — JIS G 0405/6*
Steel pipes for general purpose — JIS G 0501*
Steel pipes for boilers and locomotives — JIS G 0502*
Galvanized steel sheets — JIS G 3302*
High class finished steel sheets — JIS G 3305*
Cold rolled hoop steel — JIS G 3311*
Piano wire — JIS G 3522*
Different grades pig iron — JIS G 2201/5*
Analysis of tin by chemical and Polarographic method — JIS H 1141
Bearing metals (3 standards) — JIS H 5401/3

Mexico (DGN)

Steel strips for railroad springs — DGN B-52
Steel strips for automobile springs — DGN B-53
Steel and brass pins — DGN B-54
Corrugated steel sheets, galvanized — DGN B-55

Poland (PKN)

5 standards for different chemical tests of metals — PN H-04...
4 standards for iron alloys — PN H-18011/4
12 standards for raw and semi-finished metal products — PN H-81/2... -87...,-92/4...

Spain (IRATRA)

Zinc and its alloys — UNE 37302

Sweden (SIS)

Steel rods for chisels — SMS 267
Sampling unalloyed steel castings for tensile tests — SIS 110122
3 grades of steel castings — SIS 141305, -141505,-141606

U.S.S.R.

Steel wire for flexible hoses — GOST 791

United Kingdom (BSI)

Methods for the analysis of iron and steel
- Part 2:Nickel in permanent magnet alloys — BS 1121:Part 2:1953
- Part 4:Aluminum in permanent magnet a loys — BS 1121:Part 4:1953
- Part 5:Copper in permanent magnet alloys — BS 1121:Part 5:1953
- Part 29:Sulphur in basic steel-making slags (gravimetric method) — BS 1121:Part 29:1953

Copper tubes for general purposes — BS 2017:1953

Certified samples for metallurgical analysis — BS 1548:1953

Copper plates for general purpose: — BS 2027:1953

Aluminum bronze rods, sections and forgings for general engineering purposes — BS 2032:1953

Aluminum nickel iron bronze rods and forgings for general engineering purposes — BS 2033:1953

672 ARTICLES OF IRON AND STEEL

Germany (DNA)

Cans for preserved fruits and vegetables — DIN 2011

Japan (JISC)

Handsewing needles — JIS Z 5712

Poland (PKN)

Can opener — PN A-55002

Shoe nails — PN M-81032, -81033

674 WOOD INDUSTRY

Germany (DNA)

Testing for hole widening — DIN 52191

Italy (UNI)

4 standards for different tests of wood — UNI 3263/66

Poland (PKN)

12 standards for different wooden articles — PN Section D

9 standards for wood and wood products — PN D-04. . ., -79. . .,-94/5. .

675.04 LEATHER INDUSTRY-AUXILIARY MATERIALS

South Africa (SABS)

Standard specification for dubbing — SABS 386-1952

676 PAPER INDUSTRY

Mexico (DGN)

Carbon paper — DGN M-2

Netherlands (HCNN)

Determination of the smoothness of paper — V 1767

Poland (PKN)

6 standards for different paper articles — Section P Series 95000

Different sizes of paper — PN F-92005/7

Portugal (IGPAI)

Determination of moisture content in paper — P 35

Determination of ash content in paper — P 36

U.S.S.R.

Commercial wrapping paper — GOST/NKLES 258

Paper rolls for cash register — GOST/NKLES 293

Backing paper for wall paper — GOST/NKLES 330

AMERICAN STANDARDS

Status as of December 10, 1953

Building

In Board of Review —

Method of Sampling Magnesium Oxychloride Compositions and Ingredients, ASTM C 237-51; ASA A88.10

Method of Test for Sieve Analysis of Magnesium Oxychloride Compositions, Aggregates and Fillers, ASTM C 238-51; ASA A88.11

Method of Test for Sieve Analysis of Plastic Calcined Magnesia, ASTM C 239-51; ASA A88.12

Methods for Chemical Analysis of Magnesium Sulfate, Technical Grade, ASTM C 244-52; ASA A88.13

Methods for Chemical Analysis of Magnesium Chloride, ASTM C 245-52; ASA A88.14

Methods for Physical Testing of Magnesia for Magnesium Oxychloride Cements, ASTM C 246-52; ASA A88.15

Methods of Test for Ignition Loss and Active Calcium Oxide in Magnesium Oxide for Use in Magnesium Oxychloride Cements, ASTM C 247-52; ASA A88.16

Method of Test for Bulk Density of Magnesium Oxychloride Cements, ASTM C 248-52; ASA A88.17

Method of Slump Test for Field Consistency of Magnesium Oxychloride Cements, ASTM C 249-52; ASA A88.18

Specifications and Method for Field Determination of Specific Gravity of Gauging Solutions for Magnesium Oxychloride Cements, ASTM C 250-52; ASA A88.19

Method for Mixing Magnesium Oxychloride Cement Compositions with Gauging Solution (for Preparation of Specimens for Laboratory Tests), ASTM C 251-52; ASA A88.20

Method of Test for Linear Contraction of Magnesium Oxychloride Cements, ASTM C 252-52; ASA A88.21

Methods of Test for Linear Change of Magnesium Oxychloride Cements, ASTM C 253-52; ASA A88.22

Method of Test for Setting Time of Magnesium Oxychloride Cements, ASTM C 254-52; ASA A88.23

Method of Test for Consistency of Magnesium Oxychloride Cements by the Flow Table, ASTM C 255-52; ASA A88.24

Method of Test for Flexural Strength of Magnesium Oxychloride Cements (Using Simple Bar with Two-Point or Single-Point Loading), ASTM C 257-52; ASA A88.25

Method of Test for Compressive Strength of Magnesium Oxychloride Cements, ASTM C 257-52; ASA A88.26

Sponsors: American Society for Testing Matrials; National Bureau of Standards

In Construction Standards Board —

National Plumbing Code, A40.8 (Revision of A40.7-1949)

Sponsors: American Public Health Association; American Society of Mechanical Engineers

Methods of Fire Tests of Building Construction and Materials, A2

Sponsors: American Society for Testing Materials; National Fire Protection Association; United States Department of Commerce, National Bureau of Standards

Consumer

Project Requested —

End use standards for fabrics made from cotton, linen, silk, wool and the various synthetic fibers other than acetate and rayon, also all blends made from the above fibers

Requested by: National Retail Dry Goods Association

Drawings and Symbols

In Board of Review —

Letter Symbols for Acoustics, Y10.11

Sponsor: American Society of Mechanical Engineers

Electrical

American Standards Approved —

Specifications for Soft or Annealed Copper Wire, ASTM B3-53T; ASA C7.1-1953 (Revision of ASTM B3-52T; ASA C7.1-1953)
Cover drawn and annealed or soft, round, bare copper wire for electrical purposes.

Specifications for Hard-Drawn Copper Wire, ASTM B1-53T; ASA C7.2-1953 (Revision of ASTM B1-52T; ASA C7.2-1953)
Cover hard-drawn round copper wire for electrical purposes.

Specifications for Tinned Soft or Annealed Copper Wire for Electrical Purposes, ASTM B33-53T; ASA C7.4-1953 (Revision of ASTM B33-52T; ASA C7.4-1953)
Cover tinned, round, soft or annealed copper wire for electrical purposes.

Specifications for Bronze Trolley Wire, ASTM B9-53; ASA C7.5-1953 (Revision of ASTM B9-52; ASA C7.5-1953)
Cover round, grooved, and figure-9 deep-section grooved bronze trolley wire.

Specifications for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard or Soft, ASTM B8-53; ASA C7.8-1953 (Revision of ASTM B8-52; ASA C7.8-1953)
Cover bare concentric-lay-stranded conductors made from round copper wires, either uncoated or coated with tin, lead, or lead alloy for general use for electrical purposes.

Specifications for Hard-Drawn Copper Alloy Wires for Electrical Purposes, ASTM B105-53; ASA C7.10-1953 (Revision of ASTM B105-52; ASA C7.10-1953)
Cover hard-drawn round copper alloy wires for electrical conductors.

Specifications for Rope-Lay-Stranded Copper Conductors Having Bunch-Stranded Members for Electrical Purposes, ASTM B172-53T; ASA C7.12-1953 (Revision of ASTM C172-52T; ASA C7.12-1953)
Cover bare rope-lay-stranded conductors having bunch-stranded members made from round copper wires, either uncoated or coated with tin, lead, or lead-alloy coatings, for use as electrical conductors.

Specifications for Rope-Lay-Stranded Cop-

per Conductors Having Concentric-Stranded Members for Electrical Conductors, ASTM B173-53T; ASA C7.13-1953 (Revision of ASTM B173-52T; ASA C7.13-1953)
Cover bare rope-lay-stranded conductors having concentric-stranded members made from round copper wires, either uncoated or coated with tin, lead, or lead-alloy coatings, for use as electrical conductors.

Specifications for Bunch-Stranded Copper Conductors for Electrical Conductors, ASTM B174-53T; ASA C7.14-1953 (Revision of B174-52T; ASA C7.14-1953)
Cover bare bunch-stranded conductors made from round copper wires, either coated or uncoated with tin, lead, or lead-alloy coatings for use as electrical conductors.

Specifications for Lead-Coated and Lead-Alloy Coated Soft Copper Wire for Electrical Purposes, ASTM B189-53T; ASA C7.15-1953 (Revision of ASTM B189-52T; ASA C7.15-1953)
Cover lead-coated and lead-alloy coated, round, soft or annealed copper wire for electrical purposes.

Specifications for Hard-Drawn Aluminum Wire for Electrical Purposes, ASTM B230-53T; ASA C7.20-1953 (Revision of B230-52T; ASA C7.20-1953)
Cover hard-drawn round aluminum wire for electrical purposes.

Specifications for Concentric-Lay-Stranded Aluminum Conductors, Hard-Drawn, ASTM B231-53; ASA C7.21-1953 (Revision of ASTM B231-52; ASA C7.21-1953)
Cover concentric-lay-stranded conductors made of round hard-drawn aluminum wires, for general use for electrical purposes.

Specifications for Concentric-Lay-Stranded Aluminum Conductors, Steel Reinforced (ACSR). ASTM B232-53T; ASA C7.22-1953 (Revision of ASTM B232-52T; ASA C7.22-1953)
Cover concentric-lay-stranded conductors made from round aluminum wires and round zinc-coated steel core wires for use as overhead conductors.

ASTM Method of Determination of Cross-Sectional Area of Stranded Conductors, ASTM B263-53T; ASA C7.29-1953
Covers the procedure for determining the cross-sectional area of stranded conductors by the weight method.
Sponsor: American Society for Testing Materials

In Board of Review —

A-C Power Circuit Breakers, (Revision of C37.4-1945)

Methods of Determining the RMS Value of a Sinusoidal Current Wave and a Normal-Frequency Recovery Voltage (Revision of C37.5-1945)

Schedules of Preferred Ratings for Power Circuit Breakers (Revision of C37.6-1949)

Test Code for Power Circuit Breakers (Revision C37.9-1945)
Sponsor: Electrical Standards Board

In Electrical Standards Board —

AO 30% Hevea Rubber Compound for Insulated Wire and Cable, ASTM D27-52T; ASA C8.17 (Revision of C8.17-1936)

Methods of Testing Rubber Insulated Wire and Cable, ASTM D470-52T; ASA C8.22

Specifications for Performance Synthetic Rubber Compound for Insulated Wire and Cable, ASTM D755-52T; ASA C8.23

Specifications for Heat-Resisting Synthetic Rubber Compound for Insulated Wire and Cable, ASTM D754-52T; ASA C8.24

Specifications for Rubber Sheath Compound for Electrical Insulated Cords and Cables, ASTM D532-49; ASA C8.25

Specifications for Performance Rubber Compound for Insulated Wire and Cable, ASTM D353-52T; ASA C8.26

Specifications for Heat-Resisting Rubber Compound for Insulated Wire and Cable, ASTM D469-52T; ASA C8.27

Specifications for GR-S Synthetic Rubber Sheath Compound for Electrical Insulated Cords and Cables, ASTM D866-46T; ASA C8.28

Specifications for Ozone-Resistant Type Insulation for Insulated Wire and Cable, ASTM D574-46T; ASA C8.29

Specifications for Polyvinyl Insulating Compound for Insulated Wire and Cable, ASTM D734-50T; ASA C8.30

Specifications for GR-M Polychloroprene Sheath Compound for Electrical Insulated Cords and Cables Where Extreme Abrasion Resistance is not Required, ASTM D753-49; ASA C8.31

Specifications for GR-M Polychloroprene Sheath Compound for Electrical Insulated Cords and Cables, ASTM D752-49T; ASA C8.32

Specifications for Thermoplastic Vinyl Polymer Sheath Compound for Electrical Insulated cords and Cables, ASTM D1047-49T; ASA C8.33

Specifications for Weather-Resistant Wire and Cable, Neoprene Type, C8.34/46
Sponsor: Electrical Standards Board

Methods of Testing Molded Material Used for Electrical Insulation, ASTM D48-52T; ASA C59.1 (Revision of C59.1-1947)

Methods of Testing Laminated Tubes Used for Electrical Insulation, ASTM D348-52; ASA C59.14 (Revision of C59.14-1948)

Specifications for Natural Block Mica and Mica Films Suitable for Use in Fixed Mica-Dielectric Capacitors, ASTM D748-52T; ASA C59.26 (Revision of C59.26-1951)

Methods of Testing Shellac Used for Electrical Insulation, ASTM D411-52; ASA C59.18 (Revision of C59.18-1945)

Methods of Testing Molding Powders Used in Manufacturing Molded Electrical Insulators, ASTM D392-38; ASA C59.10 (Revision of C59.10-1941, R1945)

Methods of Test for Impact Resistance of Plastics and Electrical Insulating Materials, ASTM D256-47T; ASA C59.11 (Revision of C59.11-1948)
Sponsor: American Society for Testing Materials

American Standards Withdrawn —

Impregnated Paper Insulation of Solid Type for Lead-Covered Power Cable, C8.10-1942

Rubber Insulation for Wire and Cable for General Purposes, C8.11-1936
Sponsor: Electrical Standards Board

Materials and Products

American Standard Published —

Specification for Seamless Red Brass Pipe, Standard Sizes, ASTM B43-52; ASA H27.1-1953 (Revision of ASTM B43-51; ASA H27.1-1953) $0.25
Sponsor: American Society for Testing Materials

Mechanical

American Standard Published —

Knurling, B5.30-1953 $1.00
Sponsors: American Society of Mechanical Engineers; Metal Cutting Tool Institute; National Machine Tool Builders' Association; Society of Automotive Engineers

American Standards Approved —

Buttress Screw Threads, B1.9-1953
Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

Designation and Working Ranges of Surface Grinding Machines of the Reciprocal Table Type, B5.32-1953

Designation and Working Ranges of Plain Cylindrical Grinding Machines, B5.33-1953
Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers; Metal Cutting Tool Institute; National Machine Tool Builders' Association

In Mechanical Standards Board —

Chucks and Chuck Jaws, B5.8 (Revision of B5.8-1936)
Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers; Metal Cutting Tool Institute; National Machine Tool Builders' Association

Standard Submitted —

Practices for Stationary Diesel Engines, B68
Sponsor: Diesel Engine Manufacturers Association

American Standard Withdrawn —

Acme and Other Translating Threads, B1.3-1941
Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

Miscellaneous

Standards Submitted —

Hardness Conversion Table for Nickel and High-Nickel Alloys (Relationship between Diamond Pyramid Hardness, Brinell Hardness and Rockwell Hardness), E93-52

Hardness Conversion Tables for Steel (Relationship between Pyramid Hardness and Brinell Hardness), E48-47

Hardness Conversion Table for Cartridge Brass (Relationship between Diamond Pyramid Hardness, Rockwell Hardness, and Brinell Hardness), E33-42

Specifications for Thermometers, Z71
Sponsor: American Society for Testing Materials

Motion Pictures

American Standard Published —

16Mm Motion Picture Projection Reels, PH22.11-1953 (Revision of PH22.11-1952) $0.35
Sponsor: Society of Motion Pictures and Television Engineers

In Board of Review —

Dimensions for 16Mm Film Perforated One Edge, PH22.12 (Revision of Z22.12-1947)

8Mm Motion Picture Film Usage in Camera, PH22.21 (Revision of Z22.21-1946)

8Mm Motion Picture Film Usage in Projector, PH22.22 (Revision of Z22.22-1947)

Dimensions for 16Mm Film Perforated Two Edges, PH22.5 (Revision of Z22.5-1947)

A and B Windings of 16Mm Film Perforated One Edge, PH22.75

Aperture Calibration of Motion Picture Lenses, PH22.90

Dimensions for 35Mm Motion Picture Short-Pitch Negative Film, PH22.93

Sponsor: Society of Motion Pictures and Television Engineers

Petroleum Products and Lubricants

In Miscellaneous Standards Board —

Test for Foaming Characteristics of Crankcase Oils, ASTM D892-46T; ASA Z11.78

Test for Butadiene Dimer in Polymerization Grade Butadiene, ASTM D1024-53; ASA Z11.79

Test for Boiling Point Range of Polymerization Grade Butadiene, ASTM D1088-53; ASA Z11.80

Test for Carbonyl Content of Butadiene, ASTM D1089-53; ASA Z11.81

Test for Water Tolerance of Aircraft Fuels, ASTM D1094-53; ASA Z11.82

ASTM-Ip Petroleum Measurement Tables, ASTM D1250-53; ASA Z11.83

Test for Distillation of Gasoline, Naphtha, Kerosine and Similar Petroleum Products, ASTM D86-53; ASA Z11.10

Test for Viscosity by Means of the Saybolt Viscosimeter, ASTM D88-53; ASA Z11.2

Test for Color of Refined Petroleum Oil by Means of Saybolt Chromometer, ASTM D156-53T; ASA Z11.35

Test for Distillation of Natural Gasoline, ASTM D216-53; ASA Z11.11

Definitions of Terms Relating to Petroleum, ASTM D288-53; ASA Z11.28

Test for Knock Characteristics of Motor Fuels by the Motor Method, ASTM D357-53; ASA Z11.37

Test for Existent Gum in Fuels by Jet Evaporation, ASTM D381-52T; ASA Z11.36

Method for Conversion of Kinematic Viscosity to Saybolt Universal Viscosity, ASTM D446-53; ASA Z11.46

Test for Tetraethyllead in Gasoline, ASTM D526-53T; ASA Z11.48

Method for Calculating Viscosity Index, ASTM D567-53; ASA Z11.45

Test for Oil Content of Paraffin Wax. ASTM D721-53T; ASA Z11.52

Test for Knock Characteristics of Motor Fuels by the Research Method, ASTM D908-53; ASA Z11.69

Test for Melting Point of Paraffin Wax, ASTM D87-42; ASA Z11.4 R1947

Test for Cloud and Pour Points, ASTM D97-47; ASA Z11.5-1948

Test for Water in Petroleum Products and Other Bituminous Materials, ASTM D95-46; ASA Z11.9-1946

Methods of Analysis of Grease, ASTM D128-47; ASA Z11.16-1948

Test for Burning Quality of Mineral Seal Oil, ASTM D239-30; ASA Z11.18-1930 R1947

Test for Burning Quality of Long-Time Burning Oil for Railway Use, ASTM D219-36; ASA Z11.19-1936 R1947

Test for Autogenous Ignition Temperatures of Petroleum Products, ASTM D286-30; ASA Z11.23-1932 R1947

Test for Dilution of Crankcase Oils, ASTM D322-35; ASA Z11.29-1935 R1947

Viscosity-Temperature Charts for Liquid Petroleum Products, ASTM D341-43; ASA Z11.39-1943 R1947

Test for Ash Content of Petroleum Oils, ASTM D482-46; ASA Z11.54-1947

Sponsor: American Society for Testing Materials

Withdrawal Requested —

Abridged Volume Correction Table for Petroleum Oils, ASTM D206-36; ASA Z11.1-1936

Sponsor: American Society for Testing Materials

Photography

American Standards Published —

Method for Determining Exposure Guide Numbers for Photographic Lamps, PH2.4-1953 $0.50

Specifications for Attachment Threads for Lens Accessories, PH3.12-1953 (Revision of Z38.4.12-1944) $0.25

Sponsor: Photographic Standards Board

American Standards Approved —

Temperature for Photographic Processing Solutions, PH4.5-1953 (Revision of Z38.8.1-1944)

Method for Converting Weights and Measures for Photographic Use, PH4.6-1953 (Revision of Z38.8.2-1945)

Method for Determining the Thiosulfate Content of Processed Photographic Film, PH4.8-1953

Specification for Photographic Grade Sodium Thiosulfate, Anhydrous, $Na_2S_2O_3$, (Anhydrous Hypo), PH4.250-1953 (Revision of Z38.8.250-1949)

Specification for Photographic Grade Sodium Thiosulfate, Crystalline, $Na_2S_2O_3.5\ H_2O$, (Crystal Hypo), PH4.251-1953 (Revision of Z38.8.251-1949)

Specification for Photographic Grade Ammonium Thiosulfate, 60 Percent Solution, $(NH_4)_2S_2O_3$, (Ammonium Hypo Solution), PH4.252-1953

Specification for Photographic Grade Ammonium Thiosulfate, $(NH_4)_2S_2O_3$, (Ammonium Hypo), PH4.253-1953

Sponsor: Photographic Standards Board

In Board of Review —

Designation for Thickness of Photographic Paper, PH1.1 (Revision of Z38.1.44-1944)

Dimensions for Molded-Type Cores for Photographic Film and Paper Rolls, PH1.13 (Revision of Z38.1.48-1947)

Dimensions for 35Mm Film Magazines for Still Picture Cameras, PH1.14 (Revision of Z38.1.47-1946)

Dimensions for Industrial X-ray Sheet Film (Inch Sizes), PH1.15 (Revision of Z38.1.25-1947)

Dimensions for Graphic Arts Sheet Film (Inch Sizes), PH1.16 (Revision of Z38.1.26-1947)

Dimensions for Medical X-ray Sheet Film (Inch and Centimeter Sizes), PH1.17 (Revision of Z38.1.27-1947)

Dimensions for Professional Portrait and Commercial Sheet Film (Inch Sizes), PH1.18 (Revision of Z38.1.28-1947)

Sponsor: Photographic Standards Board

In Photographic Standards Board —

Method for Determining Photographic Speed and Exposure Index, PH2.5 (Revision of Z38.2.1-1947)

Sponsor: Photographic Standards Board

Safety

In Safety Standards Board —

Safety Code for Mechanical Refrigeration, B9.1 (Revision of B9.1-1950)

Sponsor: American Society of Refrigerating Engineers

News About Projects

Stationary Diesel Engines, B68—

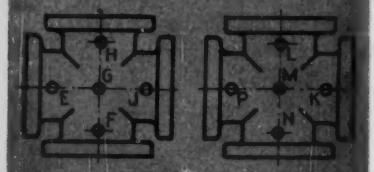
The American Standards Association recently started a canvass to determine whether ASA should approve the manual "Standard Practices for Stationary Diesel Engines." This is a standard prepared and published by the Diesel Engine Manufacturers Association. The Association has asked ASA for approval as American Standard.

Identification of Common and Basic Office Operations—

Standard definitions for office jobs should be developed through the mutual cooperation of both office management and business educators, the National Association of Business Teacher Training Institutions told the American Standards Association recently. Through development of such standard definitions, business schools would know what employers expect of a typist, a file clerk, a stenographer and other office positions. In this way, the curricula of business training institutions could be established with the assurance that students graduated under such a program would satisfactorily perform the tasks assigned to them in an office. The Association, a division of the United Business Education Association, asked ASA to determine whether a project should be organized under ASA procedures. A canvass of national groups concerned with office management, use of office forms and systems, and employee training is being made by ASA to find out whether there is a demand for such a project.

90° ELBOW
REDUCING SIZE

Front View Side View
SIDE OUTLET ELBOW
STRAIGHT SIZE



CROSS
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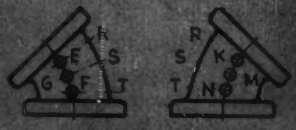
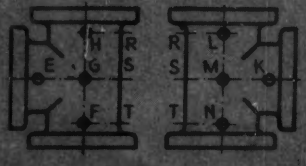


45° ELBOW

90° BASE ELBOW



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